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FOREWORD

The interdependence of modern specialized industry is forcing each administrative business mind to think in terms of "the needs, desires, and wants which pertain to the selling of all goods, articles, and products which modern industry is capable of producing. The wealth and prosperity of a community is determined by the ability of the individual to take his part in the economic structure of his day in the realization of his legitimate desires to rear a family and to possess those economic goods which give him dignity as an individual, rights as a citizen, justice and equity in relation to economic service rendered.

As business becomes larger in the presence of economic necessity for higher standards of living which modern advertising and salesmanship effort is forcing, the distributive process is becoming increasingly conscious of the necessity of interpreting the uses of economic goods in relation to the evolving health necessities of the individual, family, group, and community. It is through this new interpretation of distribution that increased wealth, consumption, and human happiness seems possible. New business functions pertaining to distribution through science and through a new technology are in the making.

The hope and present evidence of science is that those who establish selling policies in accord with scientific methods will realize increased legitimate wealth based on faith in the economic law of average. At the same time this attitude demands financing over long periods of time. It is *time* *relations* in relation to the individual and the social which is becoming increasingly important in distribution.

Two fundamental problems pertaining to wealth creative functions are before us. The same control on each as far as our knowledge goes thus seems to imply orderly and non-revolutionary attainment of maximum wealth during any economic epoch.

The first great problem is that of eliminating waste in our utilization of those goods which have become standardized and recognizedly indispensable for the individual as well as the community. For example, there is too much waste in our use of automobiles. This applies not only to imperfection in repair systems but to new roads and improperly paved streets. The expense of a automobile is due to our present inability to visualize street and repair service in relation to speed and maximum utility. But automobiles are a part of everyday necessities. The expense of upkeep, however, often seems to affect the sale of other kinds of goods. For example, the clothing industry is inclined to complain bitterly against the automobile industry as one which decreases the potential sale of clothing. Likewise the lumber industry has its advertisements appealing to our sense of proportion by advising the purchase of a home as more vital than an automobile. The argument presented is that a home is an investment while the automobile is an expense. To what extent this is correct is debatable. Or again, food goes to waste not because people are rightly nourished, but because our conception of food distribution is through channels of distribution rather than being in terms of human energy, health, diet and menus. A new interpretation of goods and products is in the making.

The second great problem which re-

lates to our efforts to sell surplus goods is that of establishing new incentives in relation to better standards of living for constantly increasing numbers of people. This selling incentive forces the individual to assume responsibilities in keeping with his earning power; moreover, it encourages him to improve his ability in order to earn the money which these newer possessions impose. A healthy individual in mind and body, properly motivated, not only searches for expression but demands it.

This volume of *The Annals* is an effort to present various aspects of selling effort which show not only scientifically cumulative dynamic forces back of present-day business activity, but also to show that the new era of distribution already has the possibility of evolving in accord with a scientific technique. The by-product of dynamic selling functions based on a scientific technology aims to create wealth in accord with wholesome, evolutionary, individual wants, needs, and desires.

The articles contributed to this issue of *The Annals* have been written by men whose attainment and thought is habitual in relation to the creative aspects of our present-day selling process. They have given us out of the richness of their experience or study descriptions of their everyday problems. Each one has attempted so to present his topic as to suggest the struggle now taking place to establish a new kind of technology to meet present changing conditions. Certain writers are critical of present-time selling conditions; others are theoretical in their discussion of the future; others show individual initiative already at work organizing new channels of distributive effort; still others are aiming to restrain our ambitions lest we make haste too quickly. Howsoever much we may differ at the present stage of development with respect to the ultimate

soundness of any of the ideas expressed, we at least must agree that the efforts herein described suggest that not only practical everyday business men, but governmental and political experts, are alive to the fact that new systems of thought are in the making. Our present agricultural block indicates that markets must be found; our economists sense the fact that business is dynamically distributive in relation to increased wealth, while our engineers sense the necessity of reducing all our functional processes to the concept of time-binding sciences.

Analysis of the topic under discussion—*Modern Selling—A Wealth-Producing Force*—makes possible the following divisional aspects:

I. MODERN ACTIVITIES AFFECTING DISTRIBUTION

The articles under this general heading define definite influences, social, political, and commercial in nature, which indirectly or directly affect the selling administrative policies of any business organization. Students of distribution already recognize the necessity of adherence to the laws of balance and proportion in relation to the diversity and interdependence of human activities. One group of interests cannot exist happy and prosperous at the expense of another group. The struggle to grasp fundamentals back of business—individual initiative, church, home, and state gives a sense of direction and helps us to establish values in relation to a vision large enough to include each legitimate interest.

II. SCIENCE AND ART AS DISTRIBUTIVE INCENTIVES

The articles under this heading indicate the influence which science and art are beginning to have in est

technology of procedure. Chemistry and physics have already won a large place in industry. The humanistic sciences, biology, psychology, and physiology, are beginning to create a new literature in relation to merchandising distribution.

Art as a dynamic factor resultant in sales pertains to a recognition of those factors which establish æsthetic values in relation to the styles and uses of goods in relation to the larger concept—the art of living. Stretching the family dollar has come to mean family expenditures in relation to the family budget. Good taste, legitimate necessities and luxuries are being justified through family discussion as to merit rather than through haphazard advertising methods.

Creative and consequently wealth-producing ideas affecting food distribution, clothing, and shelter are discussed in relation to the kinds of distributive ideas which competition and modern standards of taste and discrimination are forcing.

The standardized buying aspect of modern business is beginning to show that progress in certain lines follows prosperity in others. For example, the railroads are dependent upon freight; freight in turn is but an expression of the millions of individuals who need and strive to live up to their dignity as individuals in relation to food, housing, and shelter. Building construction and public utilities are but extensions of individual ambition and development.

III. MODERN BUSINESS ORGANIZATION AND ADMINISTRATION

The topics herein discussed relate to the broader aspects of selling which assist in establishing policies in accord with potential markets. The industrial and agricultural aspects of business analysis assist us in approximat-

ing change and growth factors ever at work impelling adaptation to potentialities.

Trade organizations contribute much to membership which insists upon the more universal aspects of their problems. Group action becomes effective in rooting out evils and diminishing the possibility of unhealthy competition.

Present agricultural efforts to make profits reflect the present status of the farmer in relation to an accounting system. The transition has got to be made from that of marketing to that of merchandising.

IV. STATISTICS AND DISTRIBUTIVE FORCES

Statistics is vitally related to the success of business in a threefold aspect; first, the accountant with his budget is quick to sense unhealthy business conditions; second, the statistician is at work in order to establish sane advertising and salesmanship effort in terms of a potential market in a given territory, while a third type of statistician is attempting to anticipate future business. The government, chambers of commerce and private organizations are constantly at work attempting to glean wisdom from the past in order to guide present events into a sane future.

The sales manager is the executive through whom policy once established effectively and finally realizes success or failure. A discussion of the necessity for quotas helps to establish a technology which eventually aims to realize greater sales.

V. SELLING INSTRUMENTS

This divisional aspect of distribution aims to describe and define the creative factors at work in distributing goods through the various channels from the manufacturer to the consumer. Ad-

vertising and salesmanship are given their functional setting in relation to the newer creative activities which the pressure of modern business as growth is facing.

The retailer, wholesaler, and advertising agency are shown to be contributors to evolutionary pressure in their struggle to reduce overhead distribu-

tive costs in relation to service to the consumer.

The educational aspects of distribution are touched upon with an eye for possible new types of schools in accordance with coming distributive demands for young people to assist in establishing our new technology in this field.

HERBERT W. HESS.

Selling Distribution and Its New Economics

By HERBERT W. HESS, Ph.D.

Professor of Merchandising, University of Pennsylvania

THE economic system of which each organized business is a part is human urge manifesting itself in life-sustaining and wealth-producing processes. Every kind of economic activity furthering individual or group necessity, initiative or aspiration is a mechanistic functional activity in relation to the broad and unified concept known as business organization. Business organization, however, has two primary yet fundamental activities. Its first interest is in the production or creation of economic goods through an appreciation of the mechanical laws of nature. Emphasis on manufacturing processes gives the concept of industrial organization. The second interest of business organization is primarily related to the consumption of economic goods. Such economic activities are characterized as commercial organization. Commercial organization has a twofold aspect immediately related to the actual as well as to the potential use of economic goods. When commercial activities are described as having clearly defined distributive channels through which economic goods pass so that they may be territorially defined and described in relation to established desire, actual markets are said to have been established. A review of these immediate activities with their accompanying efficiency problems gives us the more static concept known as marketing. When commercial activities attempt to establish a technology by which future markets may be prescribed, such activities give us our modern concept of merchandising.

Commercial organization with respect to marketing is primarily interested in the principle of continuity. By continuity is meant administrative preservation of all the established space and time factors favoring already acquired consumption. The largest motivating concept of every commercial organization through its policies is increased profits implying increased desire and increased sales. Hence, merchandising differs from marketing in that it operates in new types of relationships, dynamic in character and interacting in influence. For instance, the psychological discovery that instincts develop orderly in the life of the child, makes possible the more profitable sale of toys in relation to the exact time of the instinctive tendency to appreciate them. Mechanisms for the transfer of toys to children in whom instinct is thus normally functioning are forcing an entirely new type of form-letters and booklets, new systems of selling and even new types of retail organization.

If marketing emphasizes continuity and becomes more efficient through standardization, merchandising emphasizes the creative aspect and increases desire in accord with the inner urge of beings for higher and proper standards of living. Commercial organizations are primarily interested in those mechanisms which educe maximum healthy consumption of their goods. Commercial administration is constantly seeking those selling policies which being practical in nature tend to increase human demand in relation to greater profits.

Hence, selling administration has as its aim to introduce only such ideas as will insure continuity on the one hand and reveal possible new methods and functions in relation to greater profits on the other. The scientist is nearest the modern commercial administrator.

"His values have been accepted in the physical realm, for example, electricity, light, radium or temperature. Man's social, ethical, aesthetic, and religious evaluations are just as good facts."

Merchandising has as its task the unification of humanistic ideas and activities with respect to the distribution of all economic goods. It aims to blend irrefutable evolutionary and scientific values impinging on human consciousness with respect to each succeeding generation's urge toward greater richness of life in its use of economic goods.

NEW SCIENCE OF MERCHANDISING

The motivation and orientation of modern business in its urge toward greater profits, power, possession and enjoyment would seem to find efficiency of organization through the fructifying processes and highly developed functional activities of our present evolving merchandising technique. For the first time in the history of economic activity a consciousness of the bountifulness of nature and a significance of the legitimate aspirations of man is beginning to assert itself. Modern science is rendering concepts in relation to individual hopes, aspirations, and legitimate rights, the effect of which is to inspire the soul with a zeal for its wholesome unfoldment and evolutionary expression. Science is surcharging the economic process with new meaning and insistent purpose. Its influence is actually, and not theoretically, forcing us through

a transitional stage from that of a deficit economy and concept to that of a surplus economy. Merchandising is the name of this newly evolving transitional science directly related to a civilization based on a surplus concept of economic goods. Moreover, merchandising is a science and not an art. It is immediately related to art, however, in that it indicates the direction, defines the shade of thought and sets the line for all selling effort. The distinguishing characteristic of merchandising is its emphasis and insistence upon consumption of economic goods from the consumer's point of view. Merchandising is thus seen to have the principle of democracy interbound in its process.

Because of its emphasis on consumer, increased desire, and satisfaction, in relation to both business organizations, and maximum profits, merchandising has the possibility of putting soul and inspiring incentive in modern business. Business as satisfied desires, health, and aspirations will thus come to be in accord with the wholesome impulses of men, women, and children to partake of the abundance of economic goods which science, invention, and leadership are rendering. Prophetically speaking, merchandising and engineering processes, combined with political science carried to their logical conclusions through intelligent co-operative advertising and salesmanship, can literally make the deserts to blossom and the ends of the earth to meet. Merchandising is immediately and directly related to the inner life of individuals. It touches them at points of personal honor, immediate duty, and personal obligation. Its sublimated effectiveness is to show how to initiate urge and to establish incentive in relation to purchasing incentives. Merchandising is literally humanity turning to look upon itself

as in a glass. Herein we see ourselves both an actual recipient and a potential creative productive factor in relation to business organization, individual earning power of income, immediate standardized need, and legitimate business profits. Instincts in relation to evolving needs and wants and services—these are the reflected component elements.

CONTRASTING CONCEPTS

"Science of Wealth" under early economic conditions involving creativeness has laid particular emphasis on chemistry and physics in relation to production. Herein the physical aspects of nature in relation to product and production have been emphasized. Human desire in relation to mechanical and productive processes has been at the wonder and curiosity stage of acceptance. So suddenly did one invention or product follow upon another that architecture and transportation have not yet rendered a combined quantitative and qualitative service to the inventive, instinctive, and desire tendencies of man. Habit, tradition, custom, and the ignorance of the productive area still maintain as inhibitory factors in relation to the newly developing technique of modern demand for legitimate maximum profit and consequential maximum distribution. Modern business survival involving increased wealth has become a problem of maximum human desire. That the old type of economic thinking failed to flower in relation to the most fundamental of spiritual aspirations, truth and justice was manifested in the destruction of wealth and human life in the late war.

The flowering concepts of industrial regimentation of thought in relation to maximum profits are:

Standardization
Competition

Objective science
Experimentation or pragmatism
Unfulfilled climax or tragedy
Cycles of business.

The contrasting distributive concepts struggling for an opportunity to motivate economic activity and stability are:

Health
Co-operation
Humanistic science
Conscious creativeness or unity of expression
Fulfilled climax or attainment
Economic epochs.

The demonstrated finality of industrial thinking" motivated by the above concepts has predicted periodical death climaxes. This type of thinking has a germ within its process which is ultimately destructive, strangling, and paralytic in its hold upon economic life and processes. Production's instinctive impulses intellectualized have transferred "survival" thinking as a hang over from "natural history" thinking. Industrial thinking has lost sight of the necessity for sublimating human energy in relation to the most elementally spiritual incentives, truth, goodness, and beauty. It is only when we wish to sell automobiles advertised as beautiful in line and form; when we sell food that is good in its wholesomeness; when we sentimentalize an airplane as truthful in its adherence to the technique of engineering science in relation to safety—it is only through the force of competition and survival that business men are willing to accede these elemental human attributes as being wealth-determining processes. As yet business has been loathfully willing to acknowledge the ascendancy of the human sciences in relation to potential increased wealth. Present progress is that of crowd pressure re-

active against its limited environments. Growth in business at present is estimated through statistical experts who marshal and interpret facts in relation to human desire based on the concept of a minimum standard of living.

No criticism is hereby to be inferred. Our evolution often implies the necessity of contrast pictures as a new day with new motives begins to assert itself.

CREATIVE PROCESSES OF BUSINESS

That business is a process which touches the sources of human behavior pertaining to life or death, has been exemplified in the World War. Unless business men begin to get at the serious as well as the dignity implications of their everyday acts, so interpreting them as to be in accord with the combined scientific constructive thinking of their day, the inevitable dramatic climaxes of the past may be looked for in the future. If human nature can come to be regarded as constructive and purposeful in every act; if intelligence and soul processes establish incentives in accord with the expression of all human attributes in every act: reality and ideals become as one. Our present concept of experimental practicality is that anything realized is not capable of ideal realization. So we do the next best thing. The tendency on the part of these "so-called" practicalists is to apologize for what might seem to be done better.

Science says that there is a right way to look at a thing. In science my way of looking must be in accord with the truth of a situation. Science introduces the word *must* into our vocabulary as vital if we would experience truth as health. Facts are objective in science and influence our actions in relation to wholenesses or unity. Science as a process is an expression of truth and determines the particular way we are to accept ideas. In an

economic sense science has demonstrated its wealth-producing power through physics and chemistry. Selling distribution gathering unto herself a technique is evolving a new science of merchandising administration based on the external flowering concepts of those sciences which attempt to get at an understanding of the individual in particular and people in general. The "wealth-creating" dynamic economist is one in accord with intangible values, scientific and philosophical in relation to the ever-changing climactic future. Future practical economists or business men have as their task the reconciliation of the facts and science of individual life in relation to nature, machines, and increased wealth. The dynamic economist is not budgetary in his point of view so much as creative in relation to capital expended involving new enterprises and new systems of thinking. He discounts the present with its opportunism: he builds for the distant future. The budgetary economist is more static. He thinks in terms of running what is already established under conditions where greater efficiency is obtained: he thinks in terms of eliminating waste. The dynamic economist does not overly emphasize efficiency in expenditure. He does things in a spirit involving zeal, ambitions, power, and enterprises. He builds so massively and in the spirit of magnanimity that his works become a blessing for decades. His every act creates new values and forces new perspectives. His acts are of faith in relation to wholesome urge. His waste becomes as nothing compared with the added richness, new incentives, and actual pleasure which he establishes. He deals in creative processes which bridge into the distant future. Typical of this is the movement of human enterprise in the Pennsylvania Station of New York City.

Desire, need, wants, and fear are the four most elementary individual impulses motivating all business activity. The organization of all economic effort is in terms of these primitive impulses. The constitution of man as an elementary organized unit is thus characterized as wish with purpose, urged by internal necessity and compelled by imponderable externality. Four principles are constantly at work precipitating functional activities in relation to modern business organization. These are the principle of initiative, the principle of continuity, the principle of adaptation, and the principle of balance. Their combined resultant is a consciousness of change as growth.

It is recognition of this fact of growth that is forcing us to realize the necessity of introducing a technology to meet its requirements. This newer science, for lack of a better term, might be called merchandising. Its primary aim is to direct economic activities of business organization in relation to such technological processes as will enable each individual to possess those economic goods which are indispensable for individual self-preservation, security, and human happiness.

MODERN MERCHANDISING—A NEW SCIENCE

Merchandising defined is that function of modern selling distribution whose primary purpose is: first, to synthesize through investigation the market of a given article, commodity, or proposition; second, to make the immediate channels of distribution more efficient; third, to devise new channels of consumer approach in relation to profits and consumer satisfaction; third, to describe, define, and formulate scientifically in accord with economic principle or theory such advertising and salesmanship technique as will produce maxi-

mum returns with a minimum of effort.

The secondary purpose of merchandising is to employ the critical faculty in relation to interdepartmental functions of a given business as, for example, the relationship between the credit department and sales, the budget and sales, finance and sales, advertising and sales.

A second purpose is to employ the critical faculty with respect to competitors' methods not in accord with standards of honesty. This is evidenced by the present effort to establish Bureaus of Better Business Principles throughout the country under the guidance of the Associated Advertising Clubs of the World.

The third use of the critical faculty pertains to such criticisms of governmental acts as ultimately negatively disturb normal and changing standards of living in accord with economic principles and theory.

A fourth use of the critical faculty pertaining to merchandising as a science challenges government to envisage the constant and increased growth of business as indispensable for wholesome consumer consumption. National prosperity is the resultant.

The motivating idea of modern merchandising is the urge of economic goods by peoples of all the earth at the right place, at the right time and the right manner. This thought not only frees the energy of men in relation to necessity and possibility, but organizes the individual in his use of goods.

Tertiary forces with which scientific merchandising as a process has to contend are: first, with respect to the moral aspects of the individual to maintain a wholesome standard of living in accord with laws of personal health and development; second, with respect to the social relations of different groups, as labor, the middle class and wealth,

- racial and educational classes, etc.; third, with respect to the moral demands of structural responsibility which one group of business interests owes another, for example, the banker's responsibility to individual initiative as well as local and national enterprises.

Merchandising as a process considers the thing to be sold with respect to consumer satisfaction as well as profits through advertising and salesmanship effort. It considers governmental control and vision as vital with respect to legitimate competition and individual initiative. It demands efficiency as to methods over longer periods of time in relation to scientifically estimated maximum potential sales at minimum costs. Thus, forecasting is to become a science pertaining to vision which when not realized is indicative of wrong thinking or stupidity on the part of leadership administration. In the future it is chance which is to be reduced to the minimum.

FUNCTION OF SELLING ADMINISTRATION

The ultimate purpose of all business organization is to sell goods or render service at a legitimate profit. Selling administration has a twofold function. It is intensive with respect to efficiency of the inner workings of the organization, actually realizing such policies as have already been decided upon. The other is extensive with respect to the adoption of new policies in relation to the vision of possible future attainment established as a result of the technique which modern merchandising is employing scientifically to realize potential markets. This method is in decided contrast to the old, which trusted to chance and experimented when expediency failed.

The distinguishing characteristic of this new evolving science in distribution is twofold: first, it forces each

business to determine its inner departmental relationship as well as a given business's dependence on other businesses in terms of maximum sales and legitimate profits.

Second, it recognizes that the new ideas afforded by the humanistic sciences make possible changes in distributive channels of trade favoring new methods of procedure. For instance, let me repeat, the developing child passes through different clearly definable stages.

If we were to see to it that a child possessed the right toys in accord with the period when these tendencies assert themselves, the toy manufacturers would be compelled to establish such systems of distribution as would put the right toy into the possession of the child at the right time. Further research will undoubtedly throw light upon the effect of the use of these toys in relation to the building of better bodies, the development of co-operative habits and the creation of surplus energy through which the nobler impulses can practically realize themselves.

INFLUENCE OF MODERN SCIENCE ON BUSINESS

It is through the flowering concepts and ideas rendered by modern science brought into accord with selling policies that wholesome evolutionary changes in business are beginning to assert themselves. It is the ultimate task of merchandising through interpretative statistics to establish such organizations and functions as will be in accord with the evolutionary development in relation to the structural scheme of things.

Merchandising as a process is constantly calling into play new purposes, new incentives, and new functions. At the same time, it establishes a sense of new relations of interdependence.

That this analysis is in accord with

the facts, all we need to do is to note evolutionary changes in distribution seen in the present competitive struggle of the department store, the chain store, the five-and-ten-cent store, direct to consumer selling, the mail order house and co-operative societies. Moreover, the signs of the times seem to indicate that retailing is likely to change accordingly as the idea gains momentum that there are too many or too inefficient retailers. The concept is dawning that the structure of man himself makes possible a system of distribution under conditions which involve new methods of advertising as

already evidenced in co-operative advertising by the paint industry, courses of instruction in the "Art of Living" in our schools, which indirectly inspires the individual to higher standards of living as well as responsibility, or in new methods of salesmanship as evidenced in a tendency to bring the manufacturer and consumer into more direct contact. Nor need it necessarily follow that the middleman will be displaced. It will only follow that he will change his functional relations in accord with these new ideas which science is revealing as applicable to the maximum consumption of goods.

Political and Governmental Tendencies in Their Relation to Increased Wealth

By CLYDE L. KING

Secretary of the Commonwealth of Pennsylvania

HAVE you ever thought of the romance about this great country of ours? We have a wealth and an income per capita now far and beyond that of any other country and people anywhere. We are not only the world's greatest producer—we are also the world's greatest creditor. Wherever there are men and cities the world round there are American goods and American dollars and American investments.

And yet it is a scant century and a half since we were a struggling rural people of a population in all our colonies not so great by half as that now in the one state of Pennsylvania alone. All the wealth of this country put into dollars at the time Washington was struggling at Valley Forge would not today rebuild a single one of our many smaller steel towns alone. Washington was one of the wealthiest men of his times, and yet his entire fortune put into dollars would not build and equip one of the smaller steel mills in one of these smaller steel towns today. The lowliest of American wage earners today can enjoy a variety of pleasures and satisfactions unknown to the best among the middle class at the time of our great-grandfathers.

THE SOURCE OF WEALTH

What has been the secret of this wealth-creating power of ours? Whence has come our wealth and our producing power?

In the main from two sources: Our natural resources on the one hand; and the worthwhileness and hard work

of the people of this country on the other.

We have been creating wealth from our great stretches of forests; from the bounty of our mines—coal and iron and copper and gold and silver mines; and from the native fertility of our broad acres of virgin soils.

Some of the spent wealth of these resources is now invested in school buildings, paved highways, railroads, mills, and factories—themselves all creative of new wealth. But a part, alas, has been wasted through prodigal methods of production never to have value again. Our forests and our soils have yielded up the most of their native tribute to the wealth-creating sources of this country. The products of our mines, as of our fields and our forests, have now also reached the point of increasing costs in production.

Our wealth in the future and our living standards in the future cannot come so largely as in the past from merely helping ourselves to the bounteous gifts of Nature. We must as a nation from now on in the main pay our way and depend on the wealth we can create by skill in industry for the maintenance and we hope the expansion of the standards of living for everyone.

Wealth comes from the toil in mind or body of those who create goods or services from or through natural resources.

The trend in matters governmental follows trends in industry and in community organization. Let us therefore discuss:

- I. The Trend in Industry.
- II. The Trend in Community Organization.
- III. The Trend in Matters Political and Governmental.

We ought then to be able to discuss together:

- IV. Some Ways Toward Increased Wealth and Higher Standards of Living.

I. THE TREND IN INDUSTRY

1. *A Halt in the Upward Trend in Standards of Living*

In the latter half of the 19th century there was an upward trend in the standard of living in practically all countries. The only exceptions were among special groups at special times and for limited periods, such as the hardships of agricultural workers in England brought about by the great increase in the output of cereals in this country in the first half of the 19th century. But the general trend in living standards was upward everywhere throughout the 19th century.

In the years preceding the Great War the trend of real wages of industrial workers as a rule reached its peak. There was if anything a decline in actual standards of living. Certainly throughout the warring countries of Europe, when money wages were translated into real wages, real wages went far backward in the war period. And even in this country but few groups maintained their actual pre-war standards of living. Immediately after the war period there was a general decline in real wages, both in this country and abroad in industrial groups and a marked decline in real income in our agricultural groups. We have just passed through a short revival of industrial prosperity which has given most industrial earners in this country about the standards of living

they had before the war. But we are now having an amount of unemployment that indicates that such wages are transient, even here. Workers in war countries now have real wages far below pre-war standards.

The brutal fact is that we cannot destroy the producing power of such great segments of the world's creative wealth as those destroyed in France, in Germany, in Belgium and in Europe generally, and not have a decline in the purchasing power in such countries that will in turn produce a decline in purchasing power in all countries dependent in whole or in part on international trade for the earning power of their workers.

For a hundred years we offered free land—land as good as any in the world—to the farmers of every country who desired to come and accept the gift, on the sole condition that they put up the improvements thereon. And come from all countries they did—sturdy, self-reliant, hardworking, God-fearing men and women. These sturdy pioneers cleared the forests and broke the prairies from coast to coast. It is on their shoulders that the present, well-to-do generation stands.

But one result of these free lands of ours under cultivation of those not afraid of toil was to build up a large surplus of food products, especially wheat and animals, which find their only market abroad. The price of the farm products we produce is still set by the surplus we sell abroad. But the purchasing power of those who have bought our foods abroad is declining, as a result of war destruction. Hence farm prices have since the war been low as compared with the prices of other commodities. And low purchasing power of farm products comes at the same time that the native fertility of our soils is exhausted. The cost of producing farm goods is in-

creasing and their price is relatively decreasing. Half our people depend on the farm directly for a living. With increasing costs and declining foreign markets this half will be hard put to it in the years that are just ahead to maintain a standard of living fitting to American life, together with fair educational opportunities for their children. *Increased skill in farming alone together with every possible foreign market will keep up living standards on our farms.*

In the years preceding the World War our factories were expanding to meet a growing market for our manufactured goods in foreign countries. The World War demanded more and ever more of our goods. Our factory production, like our farm production, is now greater than domestic consumption.

We have, during and since the war period, exported large quantities of capital abroad. The interest on this capital must soon be coming back into this country in the form of goods.

Countries abroad desiring to get back to a gold basis must buy gold from us, as we have practically all the world's commercial gold. These countries can buy gold only by sending in goods.

We have developed and have been relying since the war on a large foreign market for some of our manufactured goods. The purchasing power abroad of those who desire these goods has also been lowered by war destruction.

In other words, we must have imports to pay interest on our capital invested abroad and to pay for our exports and this just as there is a decline in the foreign demand for our own surplus of manufactured goods. It is only a question of time, therefore, until the earners in our cities, too, will be hard put to it to maintain American standards of living. Only

increased competency in the factory as on the farm will keep up our living standards.

Whether we can maintain American standards of living under these conditions is dependent on our ability to produce at costs as low as or lower than any other country on earth. The secret of low unit costs on American goods lies in quantity production on the one hand, and in the skill of laborers in turning out machine products on the other. We can no longer rely on simply selling our virgin natural resources and living so largely on what Nature has given so bountifully in the past. We must from now on make our own living as a nation. And to make this living will require skill of a high and ever higher order, whether on the farm or in the factory.

2. *Ability to Produce Wealth Maintained*

Despite the fact that the upward trend in standards of living has been halted, possibly for several years, in a few countries at least, yet the ability to produce wealth has not thus far been permanently injured.

The creative mind in industry after all is in the laboratory, whether that laboratory be in the university or in the factory, in the agricultural experiment station or on the farm. The genius to try out new things and the will to put science in the place of tradition is still abroad in this as in other lands. With this creative genius at work amidst a will to achieve, in a people dependable and responsible, wealth-creating forces will continue.

Many of the forces that some look on askance are after all at the basis of wealth creation. The desire of the average man for an automobile, and of the earner for a home and for education for his children; the willingness to work that standards of living may in-

crease—these are the essential factors in wealth creating power. The desire for bettering one's condition and the condition of one's children is certainly increasing. The motive is thus a continuing one for ability and toil to create wealth.

3. *A Continued Trend Toward Scientific Selling and Marketing*

Scientific selling creates wants or satisfies existing wants; scientific marketing distributes goods and services with the least practical cost.

The huge amount of present day advertising is creating desires at a rate in excess of real income. Thus the incentive to ever greater income is kept constantly before every member of the earner's family. Scientific marketing tends to keep distributing costs down. Both are essential factors in creative wealth.

4. *A Continued Trend Toward Science in Production*

Competition is now looking to competency in management. Relatively there has been as much incompetency in management as in labor. Savings through good management, like savings in marketing, go direct into better living standards of earners or into production goods. It is possible, through scientific selling, marketing, and production, to keep living standards in this country ever a little above those in any competing country not equally alert to the value of science in business.

5. *Increased Opportunity of Individuals*

The shift in industry, made necessary and also made possible by the World War, and the relocation in effect of some cities and of centers of surplus wealth, recreates in the world today the opportunities for individual effort that characterized the heyday of our frontier life. The frontier today is a

different one to be sure. But it is still a frontier with all of the opportunities common to economic frontiers. These opportunities are not limited to capitalists. They offer themselves to those who toil at the trades and on the farm as well.

Industries change, and methods of production change and hence men must change their jobs. A recent study of life insurance statistics shows that one out of four of those who started to make a living as tailors or miners were making their living in other ways in the later days of their lives. Only thirty out of every one hundred of those who started to make their living as barbers were barbers in their later days; while forty out of every one hundred young men who started making their living as plumbers or carpenters later changed to other ways of making a living.

Mobility in industry whether for labor or for capital fundamentally after all is the basis for opportunity to individuals. Certainly both labor and capital are as fluid today as at any time in our world's history.

6. *A Growing Democracy in Industry*

Over a long look there has been and still is a definite trend toward greater democracy in industry. The economic roots of democracy in industry lie in relative scarcity of labor. With limited immigration to this country and with an increase in the demand for skilled workers, laborers have been given voluntarily by industrial managers a greater say as to their own working and living conditions. With the post-war decline in employment in this country, to be sure, numerous plans for direct participation of wage earners in the determination of working conditions were put aside. But nevertheless in the more recent months we have had an increase in the number of firms that in one way or another are

- recognizing the value to production itself of a greater democracy in industrial relations.

This is quite apart from the distinct trend toward legislation in Germany, in Italy and in practically all European countries providing by law for the creation of statutory machinery for the direct participation of labor in industrial management.

Slowly, but just as surely as came the growth in political democracy, industrial power is moving downward.

II. THE TREND IN COMMUNITY ORGANIZATION

Organization in community life changes to meet changes in economic environment. The organization and function of government is based and dependent upon organization in community life.

The following are significant trends in community organization:

1. The trend toward organized self-help by farmers.
2. Continued trend toward increased organization among wage earners.
3. The trend toward militant organization by business groups.
4. The trend toward self-government in the trades and professions.
5. A greater participation in government by self-interest groups.
6. The noon day of propaganda.

Let us discuss each of these points briefly.

1. *The Trend Toward Organized Self-Help by Farmers*

During the seventies the farmers in this country organized as one industrial group chiefly through the grange. In the last ten years there has been a significant and growing movement among farmers to organize essentially by dominant economic interests. Thus milk producers are organized to secure better milk prices in practically every metropolitan area in the United States.

Growers of tomatoes have their special price organizations as have the growers of cotton, potatoes, wheat, livestock, and practically every special farm product.

These groups have learned the economic lesson that the world helps them that help themselves. Self-help is a distinguishing feature of such agricultural organizations whether in this or in other countries. This self-help extends to the standardization and purchase of seeds and fertilizers, to the standardization of containers, to the securing of desired legislation and the prevention of harmful legislation, as well as to the securing of a fair price.

An example of what these self-help agricultural organizations are doing is the work of the Interstate Dairy Council of Philadelphia. The farmers of the Philadelphia territory have through their own organization created a committee to secure high standards of milk from every milk producer in the Philadelphia district, standards above those possible for public health departments to enforce. Toward this end a list is kept of the names of every milk producer and a record of the tests of each farmer's milk is also kept. These tests are not only butter fat tests but also sediment tests. The farmers' organization sends its own agents around to show those producers whose milk is not clean or is unsanitary how to maintain high standards in the quality of their milk. All this is done for two reasons: (1) To expand the market because good milk tastes better and because more will be purchased if people know it is a safe food; and (2) to meet in every respect the obligation upon the producer of baby food to make certain that the product is a food and not a poison.

No one who knows the situation among farmers and no one who is familiar with the splendid achievements of

these self-help organizations will say less than that these organizations are essential and creative forces in the wealth-making processes of our times.

2. Continued Trend Toward Increased Organization Among Wage Earners

Through the unemployment period following the collapse of prices consequent to the World War, an effort was made in this country to handicap if not to destroy trade unions. The wage earner was at his greatest disadvantage then as he had to have work to live. But the return of general employment, together with the futility of the effort, has brought about a situation where all must agree both that the trend of wage earners to organize in this country as in other countries is still upward and that such organizations will continue to play an important part in our industrial life.

3. The Trend Toward Militant Organization by Business Groups

In the first industrial conference called by President Wilson in the latter years of his administration, a naïve attempt was made by certain of the industrial leaders of this country to see that employers should meet only with laborers in their own shops and would not meet with representatives of trade unions not among their own employees. This meant that business men were to have effective national organizations but laborers were not. But the industrial system today is so complex, the wages in one factory so dependent on the wages in another, that many employers have stopped their efforts to force laborers to abandon national bargaining organizations and have instead grouped themselves into militant organizations for self-protection and mutual advancement.

Such organizations have been re-

vealed, not only in nation-wide wage policies, but also in organized efforts to shift such taxes as the sur-tax and to get special tariff concessions for special interests.

This movement has been materially helped by the fact that most metropolitan dailies and big magazines have to be million dollar concerns nowadays.

4. The Trend Toward Self-Government by Self-Interest Groups

The one essential to modern life and business is faith in each other.

There can be no faith unless there are standards of conduct. There can be no adequate standards of conduct unless the trades, professions, and business will themselves set and maintain each their own standards.

If the trades, businesses, and professions will not themselves maintain adequate standards, government must step in to enforce standards at least to a point that will protect the health, welfare, and morals of the people. No less than this has the state ever done. No less than this will the state of the future do; because the survival of all is more important than even the life of any individual, as shown by the universal willingness of all nations to sacrifice the lives of their best young men when the national life is in peril. Government has seldom, if ever, stepped in to regulate until compelled to do so by the lack of standards, or worse than lack of standards, on the part of the trades, professions, or businesses themselves, but the trades and the professions and business can create ideals; they can perform their best service only as they maintain high standards of conduct.

One modern way of maintaining these standards of conduct is through codes of ethics prepared by each trade or profession or business group,

adopted by these groups and enforced by them.

When community life was limited to a neighborhood, and when anyone from beyond the hills was a stranger, and when each and every person had a chance to know first hand of the goods he bought and of the services he paid for, accepted standards for trades and professions and business as such were not essential. But under modern conditions, when the plumber, or the carpenter, or the funeral director, or the engineer, or the doctor, or the architect serves those far and beyond his personal acquaintance, and when markets are world wide, the old doctrine of the "buyer beware" can in no wise protect modern consumers, or develop modern business.

The more complex our life the greater the need for faith and for ethical conduct. When faith breaks down, commerce breaks down and with commerce fall the trades and the professions.

Hence it has come about that the professions and the trades are setting up their own standards of conduct in order to insure that those who hold themselves out as members of a given profession or trade are competent on the one hand, and not harmful to the trade, or the profession, or the public on the other hand.

This is true self-government in business. And until we have self-government in business we cannot have real self-government in politics.

All of the professions, with the exception of public service, and practically all of the trades, have adopted codes of ethics. Business as such has not adopted such a code although such a code has been proposed.¹ But many special business groups have adopted and enforced ethical standards as no-

tably the advertisers in their "Truth in Advertising" campaign.

5. *A Greater Participation in Government by Self-Interest Groups*

One way to advance one's economic interest is through helpful legislation. As shown above each of our industrial and economic groups are awakening to the possibilities of self-help through co-operative effort. It is to be expected, therefore, that self-interest groups will take an ever livelier activity in governmental affairs. Competition is more and more between groups and less between individuals within a group.

We have heard much in recent years about "blocs." The eastern paper speaks of the agricultural west as a "bloc." And the western paper speaks of the Wall Street interests as a "bloc." So we have the trade union bloc, and the high tariff bloc, and the wet bloc, and the dry bloc, and the manufacturers bloc, and the newspaper bloc, and the magazine bloc.

As a matter of fact such group activities are not only to be expected but are commendable. They properly arouse public opposition only when self-interest is put above public interest. To this point we shall return in a later portion of this article.

6. *The Noon Day of Propaganda*

With various industrial and social and economic groups alive to the possibilities of self-advancement through public understanding, we have had in the last decade a universal use of prop-

Commerce and later president of the International Chamber of Commerce:

1. A business, in order to have the right to succeed, must be of real service to the community.

2. Real service in business consists in making or selling merchandise of reliable quality for the lowest practically possible price, provided that merchandise is made and sold under just conditions.

¹ The following code of ethics for business has been proposed by Edward A. Filene, formerly president of the United States Chamber of

aganda of one sort or another by practically every group interest. The farmers' organizations employ men who know the value of publicity; trade unions pay the price necessary to get clever publicity men; business organizations, chambers of commerce, the national civic federation, the industrial conference board—all have their publicity bureaus. The news editor of the modern newspaper has every day poured in to him more propaganda from interested groups than he can ever hope to use. Newspaper reporting has become largely an art of the sleuth in trying to find out what the truth really is back of self-interest propaganda. And the worst of this propaganda is often hid under the guise of incomplete and one-sided statistics.

III. THE POLITICAL AND GOVERNMENTAL TREND

Changes in industrial situations are immediately reflected in either the form or function of government. Government should change to meet its changing duties. If there is not at least this adaptation to function, government would not long survive.

Significant trends in matters governmental and political are:

1. A continued trend toward protective legislation.
2. A trend toward larger units of government.
3. A trend toward wider participation in governmental affairs.
4. A trend toward new exposure of corruption in public life.

1. *A Continued Trend Toward Protective Legislation*

When communities were small it was easy to protect one's foods because the foods were grown nearby. But now much of our food as well as our counter drinks go through a manufacturing process. Adulteration cannot now be detected by the average individual

under any circumstances. Hence we have a great body of pure food legislation, local, state, and national.

Legislation to protect health continues, although not at the rate of two decades ago when the problem first presented itself, after it became common to put poison into foods and to misrepresent to such an extent and in such ways that the old doctrine of "buyer beware" could in no wise protect the consumer.

In the field of morals there has also been a trend in this as in other countries toward protective legislation. The roots of this legislation lie in economic ground.

It may not be anyone else's business whether the driver of an old horse on a lone country road is drunk. The horse is able to protect himself to a certain extent and is also a protection to others, even after the poison of drink has stolen away the mind of the driver. But it is everybody's business when the driver of a high-powered automobile at high speed on a road dense with traffic is drunk. For the life and property of others is in peril by his actions. When goods were manufactured mainly in the homes by machines of little power, it might have been nobody's business as to whether the operator of the machine was drunk on duty. But the case is very different with the engineer handling a railroad train or with the operator of a machine in a factory when carelessness takes the life or limb of others. Drunkenness in the day of high-powered machinery is everybody's business. For we cannot even protect the lives and the property of the innocent, let alone take our place in world competition, when drunkenness pervades employment anywhere.

It is equally everybody's business when the use of drugs leads to the destruction of property if not to the destruction of human life. The commu-

nity of a generation ago had little access to habit-forming drugs. Today members of the community have such drugs thrust upon them. Hence the legislation in all the fields of morals has been increasing and whether some like it or not it will no doubt continue to increase.

Dependability becomes an essential quality of the modern worker.

The segregation of feeble-minded persons and of other inadequates has been increasing to the improvement of the physical well-being of the human race. More money is being spent on the proper training of the handicapped such as the blind, the deaf and the dumb in order that they may be productive members of society.

Unfair competition is being controlled by administrative machinery such as the Federal Trade Commission. Business is competing on a higher plane by forcing the non-conformers to comply with laws setting minimum standards. Workmen's compensation laws continue to take the burden of industrial accidents off the family and place it on the industry. Certainly few nowadays would vote to repeal such laws.

The amount and character of protective legislation largely depends upon the extent to which the trades, the professions, and businesses themselves each govern their own industry in the public interest.

2. A Trend Toward Larger Units of Government

To do its job right the boundaries of government must be contiguous with the problems with which government copes. When all our roads were tracks in the mud at their best, fair road supervision could be secured from township road supervisors. But when the need for the through automobile road came, the mud road supervisor had to give way to the builder of concrete

roads and to the highway engineer. The townships could not afford to employ such engineers. Hence state highway systems have within the last decade and a half become the rule. In other fields of government also there has been a trend toward using units of government that are as big as the job to be done. People will not long nurse a tradition in favor of local government in matters where the local government is helpless. Consequently, much formerly done by the township or county is now done by the state, just as the nation is now doing much work formerly done by the state.

For the same reasons also the field of international law is constantly expanding. International regulations are multiplying. No people will long be satisfied to let useful things go undone solely because existing national governmental machinery is not adequate to the size of the job.

Many Americans do not understand the virility of the League of Nations. But may not the very existence of effective government in Europe depend upon the success of the League of Nations? Post-war treaties so reduced the boundaries of certain European states that they are no longer effective economic units. Moreover, their boundaries are not always contiguous with economic needs. Does not survival under such circumstances require the new type of co-operative governmental machinery represented by the League of Nations?

Is it to our own public interest by isolation to wreck for years the maximum purchasing power of our agricultural groups? The world today requires effective co-operation among nations.

In the long run government will best serve its purpose by having boundaries contiguous with the economic problems it must serve. Thus

our own growth as a nation has come about largely just because such matters as interstate commerce could be handled by the nation and not by the states.

The trend toward larger units of government is no doubt here to stay.

3. *A Trend Toward Wider Participation in Governmental Affairs*

In all of the main countries in the last ten years there has been a wide extension of suffrage. This has included woman suffrage in this and in other countries and in addition a wide extension of manhood suffrage in European countries. Not only has there been a trend toward increasing the number of voters, but on the whole new voters are participating in public activities in a degree older voters did not. Certainly no group of new voters has ever taken the general interest that the women voters in this country are taking and every indication is that the same is true of women voters elsewhere.

Coupling the trend in industry itself toward industrial democracy with this trend toward greater democracy in government, we can look forward no doubt to an increased amount of economic legislation.

This economic legislation will prove harmful either if it places a burden on industry in the form of old age pensions or otherwise beyond the proper ability of that industry to bear, or if it tends to limit individual initiative or the zeal for production. The hopeful trend in this regard is that labor leaders who believe in increased production are coming into greater prominence both in this country and abroad. The present Premier of France—Edouard Herriot—is the leader of the Scientific Management School in that country. And the American Federation of Labor in this country has officially rec-

ognized the need for increased productive power.

If production is unduly limited, whether by legislation, by trade union regulations, or by short sighted wage policies, standards of living must fall. It is only through increased production that standards of living can increase. Unnecessary handicaps to useful production are harmful to the public welfare.

But this is not to condemn all legislation either in the economic field or in the field of health, morals, or welfare. The useful well-being of all is just as important as the increase of wealth of a few individuals. And to do as one pleases is not the same as individual initiative.

4. *A Trend Toward New Exposure of Corruption in Public Life*

It has been a decade or two since we have had a real revival of exposure of corruption in public life. No one who knows the facts will question that the general atmosphere in Washington, D. C., for instance, in the past four years has been that "the lid is off."

There is a trend toward a revival of higher standards of ethics not only in the church but in business. This revival now starts in to clean up government. While it may not be to the interest of some one individual to have this exposure of corruption in public life come just now, yet in the long run certainly it is in the interest of all and certainly in the interest of freedom in production that corruption be sternly wiped out of public as of private life.

IV. SOME WAYS TOWARD INCREASED WEALTH AND HIGHER STANDARDS OF LIVING

Such are some of the important trends in industry, in community organization and in government. Now what about the trends that will keep

us moving towards increased wealth and higher standards of living? Wealth comes from the application of toil and skill, physical or mental, to or through natural resources. The first two planks, therefore, in a platform of increased prosperity are:

1. Increase in vocational and specialized training, and in training for dependability.

2. Conservation of natural resources.

With both of these government has much to do.

1. *Increase in Vocational and Specialized Training and in Training for Dependability*

The very decline in the abundance of our natural resources in this country calls for greater skill in production.

The earner of the future will require specialized training, and specialized training means vocational schools. Men cannot pick up trades by walking streets. And they do not learn to be carpenters by milking cows. And they do not learn to be chauffeurs by driving horses. The very mobility of modern industry necessary to meet modern markets requires special training. The training of none is more important than the training of the carpenters, and the mechanics and all those who earn their living by skill in factory and on the farm.

While I believe in early training for making a living, I do not believe that this training should be so specialized as to make the individual feel that he must stay always on one job or in one class.

Much has been said against a machine civilization. But machines have made it possible for unskilled workers to acquire skill and by acquiring skill to make a better living. Never in the history of civilization were the living standards of earners so uniformly high as in this present machine age.

Machines cost money. This money comes from the savings of people. To destroy a machine is to destroy savings. The machine is the creature by which men and women largely make and earn their living in these modern days. He who is careless with machines is careless not only with his own job, but is careless of the savings and the work of others. Responsibility for property not one's own is a quality of workmanship essential to the very existence of success in one's own life, as it is to prosperity to the nation.

Skill, Mobility, Dependability; these are the prime essentials to modern creative power, and these in turn follow best from an effective school system, with which government has so much to do.

2. *Conservation of Resources*

If prosperity is to be other than short-lived we must protect our natural resources. This includes protection in soils; conservation in water power and in coal production and distribution; economy in the use of fuels; prevention of smoke nuisances; the development of new timber areas comparable to our growing needs; the conservation of products of our iron mines leading as that does to the public control of junk collectors; the conservation of human energies through instruction in schools as to diet and good health needs. In a thousand ways the action of the government ties in to a true conservation program.

3. *A General Recognition that the Common Interest is Above Special Interests*

Groups will always compete for a place in the Industrial Sun. The distribution of wealth is not a pink tea. There will always be struggles of one group with another. Farmers will not be contented when their prices

break and others prices are maintained. Wage earners will ever struggle for the greatest possible standard of living for themselves and their children. And profit takers will want all they can get as a reward for initiative and managerial and inventive genius. Fair competition in these group matters brings motives for increased production. Such motives we could not crush if we would and we would not if we could.

But groups must also recognize that the common interest of all is greater than the interest of any individual or of any group. In a world of specialization one group survives and prospers only as other useful groups survive and prosper.

In our legislative bodies we will always have, no doubt, farm blocs, trade union blocs, manufacturers' blocs, investment bankers' blocs, newspaper blocs, blocs for every economic, racial, or social interest. There can be no prosperity, however, for any of these save as each recognizes the value of the other. This will come about only as there is a lively public interest paramount to selfish interests.

4. Social Ethics and Self-Government in Industry

We have discussed above the trend in trades and professions toward setting up high standards of conduct and maintaining these standards through their own committees. Such self-government in industry is the basis of modern creative industry.

Group interference to be sure with members of its own group may be as harmful as governmental interference. But at least group interference will have the advantage of being thoroughly in touch with the needs of its own group.

Fundamentally a revival in ethics is imperative to increased wealth. Government activities here can help much,

but private initiative and endeavor born out of a true desire to be of service will help most. The church has new and greater duties in a complex industrial world.

Underlying our social ethics should be a sense of thrift. For capital comes out of savings. Out of savings come our great transportation systems that continue to serve regardless of the life or death of one or more individuals, as do our great electric generating systems that serve the needs of every household, run our street cars, and furnish power to our manufacturers. Such great agents of creative industry are impersonal creators made possible through savings. Thrift in private as in industrial and national life is prerequisite to any real increase in wealth.

5. Economy and Reorganization in Government

In this thrift government must do its share. Government cannot remain thriftless and expect individuals to be thrifty. To talk about putting less government in business and then simply bring about less business in a corrupt government is helpful neither to business nor to government.

To talk about thrift in government is not to condemn all public expenditures. We often forget that most public expenditures have been incurred by direct vote of the taxpayers concerned. The best creators of wealth are schools, welfare institutions, and public highways. And these three expenditures take the greater part of all local and state expenditures. Nine dollars out of ten of our national expenditures go to wars, past, present, and future. Certainly no one is going to suggest that we now repudiate our war debts. But just to make possible constructive expenditures there should be a minimum of unnecessary public expenditures.

• Thus political graft in high places and waste of public money through incompetent political jobholders is of deep concern to everyone interested in an abiding prosperity. It is a waste both of toil and of human resources to spend a dollar of taxes in the maintenance of political drones in public office. To get the best income for all, all must be legitimate producers and this the political drone is not.

Government, to be worthy of respect, must be effective. To be effective now the territory governed must be coterminous with the need for government. We need continuous reorganization in the functions of our local, state and national government, respectively, in order that each may do well what its changing present job is.

6. *A Fact Basis for Business and Public Judgments*

To get a basis for individual judgments nowadays requires facts as never before in our history. Life is more complex and more far-flung in its interests and needs. Human facts sooner or later array themselves in statistical tables. Statistics are uninteresting to many, but only through statistics can one mind project itself into the needs and facts pertinent to countless other minds. Statistical services, therefore, by nation, state, and city, and by every important indus-

trial group is one means by which each group may know other groups and by knowing other groups place the common interest above special interest. What our agricultural experiment colleges have done for the farms in putting science where once there was tradition only, the laboratories in business and universities have done or can do in putting science in manufacturing processes. Science must everywhere relieve the human mind of the tyranny of prejudice and of tradition.

Here, too, government has a distinct service to perform—a service that can be performed only as each group member of the industrial family does its particular part toward presenting honestly and completely the facts pertinent to the industrial life of that group. Propaganda will get more nauseating as facts get to be more widely circulated. Misrepresenting facts in a democracy is like spitting at the cross in a Christian church.

The greatest romance of all times lies in this: That we as a great nation have kept standards of living high in a world where low standards of living are all too prevalent. The fundamental secret of this romance lies in schools, in health and in creative power of individuals as applied to natural resources. And with these fundamentals government must ever have a great deal to do.

Sales Policies and the Federal Trade Commission

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HOW does government action affect our sales policies? How far can, and should, the Federal Trade Commission go in regulating such policies?

These queries, which are only different sides of the same question, are of growing interest to all national distributors and have attracted wide attention in the press.

POWERS OF THE COMMISSION

The Commission's authority as fixed by various laws¹ is:

To prohibit unfair methods of competition in national trade;

To prohibit exclusive or tying agreements which prevent dealers from purchasing from whom they please, thus restraining trade or creating a monopoly;

To prohibit restrictive or monopolistic discrimination in prices between different purchasers in national trade;

To prohibit other forms of restraint and monopoly such as the control by one company over its competitor's stock, etc.

The law emphatically lays down rules against such practices and requires the Commission to enforce these rules.

Previous to 1914 a business concern which was injured by such illegal practices must fight its case out in the courts at the expense of much time and uncertainty. It was believed that, by creating the Commission, the expense and delay of litigation might

be avoided by the less formal and quicker procedure which an administrative body could give.

This procedure is quite simple. The Commission's agents, acting from an impartial or public point of view, review and sift the facts with care, and if they find that an unfair method of competition has been followed, and that the public interest requires a proceeding by the Commission, the case is placed on the docket after notification to both sides. A formal hearing is then held, after which the Commission either determines that the practice complained of was illegal, and forbids it by an order to "cease and desist," or that the law does not forbid the practice, whereupon proceedings end. If the party so restrained is dissatisfied with the order he may appeal to the courts.

The procedure just described is far more speedy, cheaper, and in general more effective than the older method of court litigation.

To illustrate—a few manufacturers of mercerized cotton began to market their product under the name of "silk," or "sewing silk," or "cilk." The manufacturers of genuine silk objected vigorously to this type of competition and applied to the Trade Commission for relief. That body first sent a memorandum on the matter to the companies using the objectionable labels, and received replies stating that there was no deception in their labels and that they were not in any sense practising unfair methods. The Commission then proceeded to set a date for a public hearing. This completely changed the whole aspect of affairs. The defendants at once

¹ Chiefly the Federal Trade Commission Act of September 26, 1914, and the Clayton Act of October 15, 1914.

declared their willingness to abandon the practice. No hearings were needed. No litigation followed and no further expense to either side was incurred. The general policy of the Commission has been to settle matters informally wherever possible. Frequently a mere notification with a summary of the facts, sent to a competitor who has transgressed the law, is sufficient to stop an illegal practice.

THE TRADE PRACTICE SUBMITTAL

The term "unfair competition" in the Act of 1914 is one that has been used for centuries in England, Europe, and the United States. It forms a part of the English Common Law and is dealt with at length in the commercial codes of the Continent. In our own common law it occupied an established place long before the Federal Government in 1914 embodied it in the Trade Commission Act. Its meaning is fixed, not by an exact definition, but by a gradual consensus of opinion as to those practices which according to the standards of the time are unethical and illegal.

The Supreme Court, faced by the necessity of giving some definiteness to the term, has attempted to do so first negatively and then positively. In the *Gratz* case, *Federal Trade Commission v. Gratz*, 253 U. S. 421, 1920, the Court said that the words "unfair method of competition" clearly did not apply to practices never heretofore regarded as opposed to good morals because characterized by deception, bad faith, fraud, or oppression, or as against public policy because of their dangerous tendency unduly to hinder competition or create monopoly.

This was a negative description.

The Court made it positive in *Federal Trade Commission v. Beechnut Company*, 257, U. S. 441, 1922, and declared that when a trade practice did

offend in the way above described it was an unfair method of competition.

Therefore, in determining whether any sales policy is permitted by the unfair competition clause of the Act of 1914, we must ask:

Is it marked by deception or bad faith or fraud?

Is it oppressive to the competitors or to the public?

Is it generally regarded as against public policy because it tends unduly to hinder competition or to create a monopoly?

The Commission, however, is an administrative body. It must apply the Court's definition of "unfair" to countless changing facts and customs; it must find out when a sales policy is deceptive or oppressive or monopolistic.

In its efforts toward this end it has wisely adopted a plan known as "the trade practice submittal." This is a conference of the chief manufacturers and distributors in any given industry, presided over by a member of the Trade Commission. It takes up in detail those evils of the trade which are traceable to unfair methods, and makes up a definite list of the practices which, by the consensus of opinion of those present, should be barred. This list is adopted in the form of a resolution and transmitted directly to the Commission for its advice.

Such a trade practice submittal, of course, cannot be legally binding on the Commission, but is highly valuable in two ways: First, it secures some unanimity in the trade and directs the attention of the leading concerns to the maintenance of standards; second, it strengthens the Commission's hands in proceeding against those who fail to conform to these standards, and enables the Commission to quote the expressed sentiment of the trade, in so doing.

What is a "gold-mounted" knife? Here the possibilities of fraud and unfair competition are legion. The need of some definite standard is generally admitted. A trade practice submittal was effected in 1922 in this field. What is a "gold-filled" or "gold-plated" watchcase? Representatives of the industry met a member of the Commission in January, 1923, and adopted a formal resolution. Some parts of this resolution are especially interesting in view of the claim often repeated that business interests generally oppose government regulation:

Now, therefore, We, the undersigned manufacturers of not less than 75 per cent of all of the gold-filled or gold-plated watchcases manufactured in the United States, in open meeting condemn the practice of guaranteeing gold-filled or gold-plated watchcases to last or wear for specified lengths of time, and we hereby petition the Federal Trade Commission to bring its action against (persons or firms which offer their watchcases as "guaranteed" or "warranted" for a definite time).

The reason for this remarkable declaration is that the 20- or 25-year guarantee offered with so many watchcases has lead to widespread abuses and frauds by those who offer "gold-filled" cases of inferior quality.

The oil business which has justly been regarded as an open field for unfair practices has been the subject of two conferences both in 1920 at Chicago and Denver. These were called at the instance of independent oil producers and dealers, and resulted in conference resolutions condemning such trade devices as:

- (1) False representation as to the value of a competitor's products.
- (2) Attacking a competitor's financial standing, integrity or ability.

- (3) Condemning a competitor's business because of size, either large or small.
- (4) Advertising so as to imply that competitor's producers are not good.
- (5) Misrepresenting or misbranding oil products.
- (6) Secret rebates.
- (7) Commercial bribery, etc.

A number of other conferences have taken up trade practices in the dairy, paper, and typewriter industries. In October, 1923, at the suggestion of the Secretary of the Music Publishers' Association of the United States, a trade practice submittal was held to consider the marking of musical publications at fictitious prices. It was attended by publishers representing 95 per cent of the output of standard sheet music. After discussion of the practice of marking such music at prices a little over one-third higher than the actual retail selling price, the publishers agreed that this practice was deceptive and might injure the public. The following resolution was then unanimously adopted:

We believe the proper way of marking prices on music is to use the price at which it is expected the music will sell for at retail under conditions of normal competition.

The Trade Commission then also adopted this principle. Let us now glance at a few sales problems touched by the Commission.

(1) STANDARDS OF BRANDING AND ADVERTISING

The Commission's interpretation of "unfair methods of competition" has a special bearing on the branding, advertising, and representations as to the nature and quality of goods. It has often been said that 95 per cent of the

business world is honest. This is probably true. But it does not mean that this 95 per cent and the buying public should be deprived of protection from competitive misrepresentation and fraud. It is a remarkable testimonial to the practical need of the Commission's activity that, although certain influential producers whose methods have not always been above reproach are constantly criticizing the Commission and seeking to undermine its strength and usefulness, there is also a counter-stream of demands from many sources that the Commission use to the full its protective power. It is equally true that these latter demands come from producers and distributors within the industries to be regulated. Not only the watchcase manufacturers, the jewelers, and independent oil producers as already noted, but such an influential group as the Associated Advertising Clubs and numerous other trade bodies, have asked that in their business the Commission shall aid in establishing and enforcing definite standards of competition.

RISE OF NEW STANDARDS

It is indeed difficult to find an industry organized on a national scale which is not becoming aroused to the need of such standards. In a previous number of *The Annals*, May, 1922, the remarkable scope and extent of this movement has been set forth. It has been ably guided and strengthened by the International Rotary Clubs, which have made this one of the cardinal planks in their program and have established a committee on business codes, to this end.

The ideal means of enforcing such codes would be also by trade associations. But they are as yet too weak or too greatly hampered by the law to take drastic action against offenders.

Meanwhile, until they become strong

enough to enforce standards, the work of doing so must devolve upon the Trade Commission. In this activity it has been effectively supported by the courts. For example, the underwear industry has been subject to especially keen competition until certain standards of quality in the trade had ceased to have a practical meaning. "Wool" or "woolen" printed on a box label might mean all wool or 20 per cent wool according to the necessities of the producer or his elasticity of conscience. The trade association had condemned this use or rather misuse of labels and brands, by a resolution setting forth that only products made entirely of wool should be so labeled. In *Federal Trade Commission v. Hosiery Company*, 258 U. S. 483, 1922, the continued infraction of this resolution by a large manufacturer was brought to the attention of the Commission. That body after a hearing ordered the hosiery company to cease and desist from the use of the terms "merino," "wool," and "worsted" on the labels of its cartons and packages containing underwear not made entirely of wool. Some of the garments were said to contain as little as 10 per cent of wool.

The company objected to the order of the Commission; and the case coming to the Supreme Court, it was held that such a misuse of labels was an injury to competitors who made their products honestly, also an imposition on the public which might buy the garments on the strength of the representation made on the label.

Such a practice, the Court held, was unfair competition and the Commission had acted legally in forbidding its continuance.

For when misbranded goods attract customers by means of the fraud which they perpetrate, trade is diverted from the producer of truthfully marked goods. That

these honest manufacturers might protect their trade by also resorting to deceptive labels is no defense to this proceeding brought against the Company in the public interest.

The Court added a point which is of the utmost importance in the wording of labels. Answering the objection raised by the company that the words "wool," "merino" and "worsted" had been so generally and loosely used to cover mixtures of wool and cotton that no one was deceived by such labels, the Court said:

A method inherently unfair does not cease to be so because those competed against have become aware of the wrongful practice. Nor does it cease to be unfair because the falsity of the manufacturer's representation has become so well known to the trade that dealers, as distinguished from consumers, are no longer deceived. The honest manufacturer's business may suffer, not merely through the competitor's deceiving his direct customer, the retailer, but also through the competitor's putting into the hands of the retailer an unlawful instrument, which enables the retailer to increase his own sales of the dishonest goods, thereby lessening the market for the honest product.

Similar difficulties have arisen on a large scale in the hosiery business, where in one year twenty orders to cease and desist were issued against companies and dealers who had so misbranded mixtures of cotton and wool and cotton and silk as to create the impression that they were made of wool or silk, respectively.

The Commission has recently been called on to prevent deception or misrepresentation in such widely separated fields as the imitation of existing firm names in wholesale shoe distribution; the sale of live stock medicines which did not contain the ingredients represented; the deceptive advertisement of certain breeds of hogs, as being immune from cholera, pneumonia, and other

diseases; the advertising of a new brand of baking powder under an old name; the misleading advertisement that a retail company's teas and coffees were personally selected by its representative in the finest plantations of the world, when 75 per cent of its teas and all of its coffees were purchased from wholesalers and importers in this country, etc.

(2) PRICE PROTECTION

A second point at which the Federal law frequently touches sales policies is in the maintenance of retail prices. The aim of the manufacturer here requires little comment. Some national producers make no attempt to maintain the retail prices of their products at any fixed, advertised level. Alongside of them in the same industry are other concerns which put forth the most strenuous efforts to protect such prices. In breakfast cereals, for example, the Quaker Oats Company allows retailers to market its products at any figure which they please. The Cream of Wheat Company pursues the exact reverse of this policy. On the whole, the price protection plan seems to have gained many adherents in recent years. The manufacturer reasons that a stable market for his goods is more important than retail price competition. Price-cutting disturbs his market and causes ferment and complaint among his distributors. It often proves most costly to the producer. The latter wants peace, permanence, stability. Hence, the steady, insistent growth of price maintenance campaigns.

No serious legal question arises if the manufacturer can retain the ownership of his product until it reaches the consumer,—that is, if he can sell his product by agencies rather than through independent dealers. An agent is an employe, and the employe

may be instructed as to the price at which goods are to be sold. But this is an expensive method. The manufacturer must finance the marketing of his goods, which means wrapping up large quantities of additional capital. Few producers today resort to a real agency method.

If a manufacturer abandons the agency plan and sells his goods through independent dealers, his efforts to keep up the retail price after the goods have passed out of his hands encounter a host of legal problems. Let us examine a few of these:

(a) He cannot contract with retailers that the latter shall sell his goods to the public only at certain prices. Such a contract would be an agreement to suppress competition in price. A contract to suppress competition, the courts have always held, is an agreement in restraint of trade. This would be a violation of the Anti-Trust Act; *Miles Medical Co. v. Parke Drug Co.*, 220 U. S. 373, 1911.

Even if the article produced is a patented one the manufacturer cannot hold the retailer to such a contract; *Bauer v. O'Donnell*, 229 U. S. 1, 1913.

(b) A producer may, however, request dealers to maintain a certain fixed retail price, and if they fail to do so he may refuse to sell to those who cut prices. The distinction is that a "request" to maintain prices is not an "agreement" to do so.

So when a soap company requests its retailers not to cut the list prices of its soaps and perfumes and exacts from them no pledge to comply, but simply asks them as a matter of trade policy that they adhere to the list, there is *no agreement* in restraint of trade, and the practice is legal so far as the Sherman Act is concerned; the *Colgate case*, 250 U. S. 300, 1919.

(c) If the manufacturer, after requesting dealers to maintain certain

retail prices, employs investigators to report as to which retailers are cutting prices, refuses to furnish them with more of his goods when they do cut and then requires them before receiving a new supply to pledge themselves to maintain the regular retail list, he is practising an unfair method of competition, that is, one which is oppressive and *tends to restrain competition* or create a monopoly. *Federal Trade Commission v. Beechnut Packing Co.*, 257 U. S. 441, 1922.

(d) Another method of price maintenance, which has failed to stand the court test, is the so-called open price plan. The members of a trade association agree to send to the secretary a weekly or monthly statement of their sales, giving exact prices and quantities and grades. Sometimes they also report on the stock in hand of each grade and size. The secretary or other price-maintaining officer of the association digests this material and sends a weekly or semi-monthly letter to all the members, sometimes accompanied by an earnest plea to maintain existing prices. Each competitor is thus kept informed of the sales quotations of his rivals, and a strong influence to maintain prices is exerted. The members do not combine to keep up their prices to any fixed level; they agree only to give information as to what they are doing and what stock they have in hand.

The open price system led to such a noticeable maintenance and even increase in price levels that the government's attention was attracted to it, and in *American Column and Lumber Co. v. U. S.*, Dec. 19, 1921, the Supreme Court declared it a violation of the Sherman Act. The Court pointed out that the whole purpose and effect of the agreement to furnish the information was to *stop competition in price*, and that such an agreement was

therefore in restraint of trade and contrary to the law.

This seems to reach the border line between legal co-operation and combined restraint of trade. Every producer and large dealer needs information as to the general conditions of the market in order to prevent serious blunders and losses. This information usually covers approximately the points mentioned in the lumber case, *viz.*—the amount of goods of each kind on hand, and the ruling price.

Secretary Hoover has clearly shown that a reasonable co-operation among competitors to these ends is necessary and proper, and that if the law does not permit such co-operation the law should be amended, or else the government itself will have to provide the information required. Intelligent competition must be based on comprehensive data.

(8) PRICE DISCRIMINATION

Closely related to the problem of price maintenance is that of price discrimination. Can a national producer sell to any persons whom he pleases and at any price that he pleases? Again we must observe the difference between agents and independent dealers in the retail trade. Any manufacturer may designate another person as his agent. He may fix the price through his agent at any figure that he pleases. But if he sells his goods outright to an independent dealer he must bear in mind Section 2 of the Clayton Act, which forbids discrimination in price between different purchasers where the effect is to lessen competition or create a monopoly. The teeth of Section 2, however, have been carefully drawn by a proviso that it shall not prevent "persons engaged in selling goods . . . from selecting their own customers in *bona fide* transactions and not in restraint of trade."

The rise of the chain store with its vast buying power has brought pressure on many manufacturers and wholesalers to sell to chain companies at a lower price than to small retailers. To counteract this, the little stores have pooled their buying and have demanded of the wholesaler or the producer the same terms as the chain store for the same quantity of goods. Can the wholesaler or the manufacturer legally discriminate in favor of or against either of these competing groups?

Again, when a number of retail stores form a co-operative buying agency called a co-operative wholesale company, this new concern comes into active competition with the old established wholesale companies already in the field. The old line wholesalers demand that they be given a lower price than the co-operative. Can the manufacturer legally do this?

The second question was answered in *Mennen Co. v. Federal Trade Commission*, 43 Sup. Ct. Rep. 705, 1923. The Mennen Company manufactured toilet preparations which it sold to two classes of dealers, wholesalers and retailers; the former, of course, secured the regular wholesale price, while the retailers were charged a higher rate. The company classed only the old line wholesalers as wholesalers. It placed the co-operative wholesalers in the retail class on the ground that their capital stock was held by retailers and that they were really purchasing agencies for the retailers.

The Supreme Court ruled that the Mennen Company had not violated the section because the "co-operative wholesalers" were in reality not wholesalers, but retailers. It also declared that when Section 2 of the Clayton Act prohibited discrimination which might "lessen competition," it meant competition between sellers and not

between purchasers or retailers. Accordingly the Mennen Company's practice was legal.

A national producer may also favor chain stores and may even refuse to sell to co-operative or pooling buyers. This was decided by the Circuit Court of Appeals of the 2nd Circuit on May 5, 1924, in *Trade Commission v. National Biscuit Co.*

Section 2 of the Clayton Act, therefore, has not proved a serious restriction upon sales policies.

Pittsburgh Plus—Can a large producer, controlling about one-half of the product in his line, base his selling prices throughout the country on the price at one point, plus an additional charge for freight? The U. S. Steel Corporation has for years sold most of its products on the Pittsburgh base. The Federal Trade Commission in a ruling just delivered has forbidden this practice on the ground that it is a discrimination in price contrary to Section 2 of the Clayton Act and is also an unfair method of competition. The Commission points out that steel is produced in the Chicago and southern districts at a much lower price than at Pittsburgh, yet the steel buyers of these regions are compelled to pay the "Pittsburgh plus" price. This discriminates against them to their great disadvantage and lays a burden on them which in view of their nearness to cheap steel is undue and unreasonable. The Commission claims that estimates show that an extra charge amounting to thirty million dollars for steel is paid by the farmers of eleven western states.

In favor of the Pittsburgh plus plan it was urged that price stability was a great advantage to the nation as a whole and that the industry regarded as a national unit could better serve the public if allowed to operate on a national basis. It thus afforded not

only the seller but the buyer of steel products a definite basis of calculation which was of the utmost value. The validity of the Commission's order will be taken to the courts for final decision.

The question also affects other basic industries such as zinc on which prices have been quoted from East St. Louis, lumber on which for many years Seattle prices were quoted, domestic beet sugar on which San Francisco, New York, and New Orleans prices were used. It will take some time for the government and the public generally to realize that sales and distribution problems are developing along national lines and that the producer must base his prices upon factors of national scope and breadth. If the maintenance of Pittsburgh or New Orleans and East St. Louis plus prices can enable an industry to produce and distribute more effectively on a national basis, the practice should be permitted.

(4) OTHER RESTRICTIVE AGREEMENTS

Another legal problem affecting sales policies is the maintenance of free, open competition as against artificial obstructions. If a group of distributors combines in a refusal to deal with a manufacturer or a retailer, such a combination being "an agreement to restrain trade" is forbidden by the Sherman Act. This has been well settled in numerous decisions commencing with the *Eastern States Lumber Dealers' Association v. U. S.*, 234 U. S. 600, 1914. This question is an exceedingly broad one. It usually arises in the following way: A manufacturer or a wholesaler wishes to sell direct to the public while at the same time continuing to sell to retailers. The retailers, feeling that a wholesale concern should not engage in retail trade, agree among themselves not to deal with wholesalers who compete

also in the retail trade. But an agreement not to deal is an agreement to restrain trade, and is forbidden by the Anti-Trust Law.

So also is an agreement between wholesalers not to sell to a retailer who cuts prices, as we have seen. If a group of publishers, seeking to protect the retail sale price of their copyrighted books, publish a "cut-off list" containing the names of those retailers who persist in price-shading and circulate this in the trade so that a cut price retailer is unable to secure a supply of books, such a combined effort is again an agreement to restrain competition, contrary to the Federal law.

EXCLUSIVE AGREEMENTS

The "tying contract," as it is sometimes called, is an attempt by one producer to exclude others from certain channels of retail trade. To this end he stipulates in his contracts with retailers that they must not deal in the products of his competitors. Formerly a long list of commodities from talking machines and records to photographic supplies were all marketed by this exclusive system. Our attitude towards it depends largely on our trade philosophy. If we believe that trade is best fostered in the public interest by allowing a very few large producers to secure exclusive control of retail facilities and thereby to exclude their competitors' goods from the market, we shall favor the tying agreement. If we believe that the independent retailer is an outlet to the public which should be kept reasonably free for the marketing of many brands of goods, we shall oppose exclusive contracts.

It is, of course, well understood that if a producer distributes his goods through agencies, he may require his agents not to deal in the products of a competitor; *Federal Trade Commission*

v. Curtis Publishing Co., 260 U. S. 568; 1923. It is also clear that a wholesaler may for a limited time sell two associated products only in conjunction with each other, such as steel tape and cotton bagging. This was established in *Federal Trade Commission v. Gratz*, 258 U. S. 421, 1920. Here there was reason to believe that speculators were attempting to secure control of the supply of steel tape; also there was no evidence to show that the public interest had suffered by the wholesaler's action.

But the steady growth of exclusive contracts brought certain evils in its train, and in Section 3 of the Clayton Act it was made unlawful to lease or sell goods in the course of national trade on the condition that the lessee or the purchaser shall not use or deal in the goods of a competitor of the lessor or seller, when the effect of such a condition is to lessen competition or tend to create a monopoly in commerce. The interpretation of this clause by the courts and the Commission has been followed with keen interest by those in responsible charge of sales policies.¹¹

In *Standard Fashion Co. v. McGrane-Houston Co.*, Apr. 10, 1922, the Supreme Court applied this section. The fashion company manufactured and distributed "standard" garment patterns. It and other pattern companies were owned by a holding company which supplied about two-fifths of the 52,000 pattern dealers and agencies in the United States. The McGrane Company operated a retail dry goods store in Boston. In 1914 the Standard Fashion Company made an agreement with the McGrane store by which the latter was to sell the Standard patterns. One clause of the agreement read, "The McGrane Company shall not sell nor permit to be sold on its premises any other

•make of patterns during the term of contract.”

The Supreme Court held that this latter clause was a violation of Section 3 of the Clayton Act. The McGrane store was not an agency of the Standard Fashion Company, but an independent dealer. A substantial lessening of competition or a possible monopoly might result from the carrying out of such exclusive agreements on a large scale. The contract was therefore invalid. This decision makes it clear that wholesalers and manufacturers may not exclude the products of their competitors from retail stores by contract.

They may, however, furnish a retailer with equipment and apparatus which are to be used exclusively to dispense their own lines of goods. For example, an oil company may furnish retailers and garagemen, at a nominal charge, pumps and tanks required for the sale of their particular line of gasoline, and may attach to this the condition that these pumps and tanks shall be used only for their line of gasoline and not the gasoline of their competitors. This does not prevent the retailer from making similar contracts with other companies. He may, as many retailers and garagemen do, have two or even three separate pumps and tanks for the sale of the products of different oil companies.

In the phonograph business it was for some years customary to restrict dealers by agreement to the sale of a single manufacturer's phonograph and records. But this has now been abandoned except where the retailer ceases to be an independent dealer and becomes an agent. All large department stores now sell several makes of both talking machines and records.

Several other points indirectly connected with sales policy have been before the Trade Commission for discussion and settlement. Is a sub-

stantial gift to the purchasing agent or other employes of a customer an unfair method of competition? A national conference of purchasing agents has vigorously condemned such substantial gratuities as being unethical and improper. On numerous occasions the Commission has been asked by manufacturers and distributors to take similar action. In one of the Circuit Courts of Appeal, the Commission's effort to condemn this form of competition has been defeated. The question cannot be considered as finally settled until it has been passed upon by the Supreme Court.

GENERAL ATTITUDE OF THE COMMISSION

The duties which the law imposed on the Commission made it inevitable that it would encounter the opposition of certain strongly intrenched interests. On frequent occasions the Senate has passed resolutions requiring the Commission to make inquiries and investigations. These have necessarily aroused opposition from important groups in the industries to be investigated. The Commission's authority has been fought at every point by these groups, and strong efforts have been made to discredit it in the court of public opinion. This is to be taken as a matter of course in the development of any government body which possesses real authority either to regulate or to make inquiry. The mere investigation of many practices which would not bear the light of day has been sufficient to cause their abandonment. As the Commission's powers have become more clearly defined and as its usefulness has grown, the hostility of the interests concerned has become more marked. For these reasons it is seldom that we find in the public press an unbiased view as to the Commission's attitude and service,

It is notable that of eight general investigations made by the Commission in 1923, six were ordered by the Senate and one by the President. The most violent criticisms of the Commission have been incurred by its efforts to secure the information called for by these Senatorial requests. Nor may we fairly charge the Commission with attempts to regulate contrary to public sentiment, or contrary to the well-known facts in an industry. The Commission's use of trade practice submittals has kept it close to the real public opinion of the leading trades. Its most valuable work from the standpoint of the national distributor is:

- (a) Its aid in formulating trade standards through national conferences.
- (b) Its efforts to enforce these standards once they have been established.
- (c) The tribunal which it offers for the small as well as the large producer and distributor to press his cause to a hearing without inordinate expense and delay.
- (d) The vast majority of matters taken up by the Commission are settled satisfactorily without appeal to the courts, and most of the applications are adjusted without even formal docketing. In the fiscal year 1922-23 the Commission's activity was requested in 1,169 separate matters. Of these, 646 were handled informally by correspondence. In only 416 were the papers docketed as applications for formal proceedings. Because of its very success in securing an amicable and quiet adjustment of trade

disputes the public hears comparatively little of this, its best work. Its results on the whole have been excellent.

OUR FUTURE POLICY

(1) Our national and state laws should be changed to permit of the further growth of trade associations. Our government should even encourage and assist in this growth. The trade association is the natural means of expressing the standards of an industry. Far from restraining or suppressing such associations we should foster them. From present indications they are bent on raising the level of competition.

(2) We should adopt the proposal already made by the Trade Commission in 1919, that agreements to maintain prices in certain staple articles in national trade shall be legalized if and when approved by some government authority which is equipped with fact-finding facilities.

We have already adopted this principle in the railway and shipping laws. Both of these acts permit certain combinations if and when they are approved by the Interstate Commerce Commission or the Shipping Board, respectively. The basic weakness of price-fixing agreements is that they tend to inflated price levels unless checked by some regulative force. The ordinary competition of trade has not been sufficient in the past because the chief competitors themselves make the agreement. If agreements in certain staple lines were examined by the Trade Commission to determine whether they protect the public adequately, this weakness would be removed and a greater measure of trade stability could be assured.

Banking and Its Relation to New Wealth

By FRANK PARKER

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A REVIEW of the relationship between banking and the production of new wealth may be undertaken with a more modest gesture if the pivotal terms "banking" and "wealth" are more concretely defined. For the aspect of the relationship would be materially different if the term banking were deemed to embrace the whole field of banking activity, including therein all forms of banking and investment institutions whose functions relate to the accumulation and distribution of wealth, and if the significance of wealth were arrived at by implication of the individual reader. In this discussion, the term banking is confined to commercial banking institutions whose primary function is to foster the production of wealth, whereas wealth is anything that satisfies a human want and is not unlimited in quantity. The adoption of the economic definition of wealth is not to be construed as a disparagement of the other definition that wealth denotes anything that contributes to human welfare, but it is somewhat incongruous to explain the relationship between a class of institutions dealing with specific items and things capable of exact measurement, and a general condition such as welfare, the concept of which will vary with the individual reader.

The relation of banking to new wealth is conditioned by the adequacy of existing banking facilities and the character of administrative policies adopted by banking institutions. Manufacturing, commerce, and transportation are inextricably intertwined with banks by virtue of the media of exchange furnished by the latter.

Thus banking may be said to occupy a critical position in the production of new wealth, for its influence is manifested at various points in the productive process which transmutes raw material into a finished product and distributes it to ultimate consumers. The exchange of credit between merchants, the accumulation of capital for productive enterprises, the development of a merchandising program, and to some extent the purchasing power of the consumer, eventually come in contact with or are dependent upon the operations of banking institutions. It follows that the adequacy of banking facilities and the character of service rendered thereby are two significant factors affecting the production of new wealth. If accretions to wealth are desirable, then it may be appropriate to consider some of the principles relating to increased banking facilities and service.

ADEQUACY OF BANKING FACILITIES

Banking facilities, as the phrase is here used, are not synonymous with banking service. Banking facilities are concerned with the physical existence of banking institutions; banking service relates to the attitude and policy assumed by officers of banking institutions. The adequacy of banking facilities may be gauged by the number, geographic location, strength, soundness, and adaptability of banking institutions.

While the number of banking institutions in operation would seem to be a reasonably accurate indicator of adequacy, the business policy of the bank's officers and the form of corporate organization used may give to the

problem a somewhat different complexion. A mere numerical increase of banking institutions in a community does not necessarily involve an increase in banking facilities, nor, conversely, does a numerical decrease signify a decline therein. The legal abolition or endorsement of branch banking might well produce a relative increase or decrease respectively in the number of corporate banking entities, without changing the absolute number of banking units offering their services to the community. The tendency towards consolidation of smaller banking units, evident especially in the principal commercial countries of the world, ought therefore evoke no concern. Unless branch banking is specifically prohibited, consolidation does not necessarily involve a reduction in banking facilities. The expansion of banking resources incident upon consolidation frequently enables the parent institution greatly to expand its facilities through additional branches and the possibilities of securing additional economies of operation may serve as a further incentive to the establishment of branches. Communities recently have become agitated by the imminence of an imaginary banking power of Brobdingnagian proportions. Usually banking institutions must attribute their existence to the fact that they perform a necessary public service in the community in which they operate. As public service institutions nominally subjected to the regulations of the state and nation, they ought not constitute an exception to the pervasiveness of the law which is sought to be made most effective by their existence. It is either to alter the law or to secure a more effective enforcement thereof that they are too small to meet the test of the law. To secure a more effective enforcement thereof, banking institutions and

parent banks with branches will be compelled to make their practices conform to the same acceptable standards.

Differences in the number of banking institutions in different geographic sections of a nation has often led to mistaken conclusions. For example, in the United States it is sometimes asserted by business men in certain sections of the country that they are hampered in the production of wealth by inadequate banking facilities, whereas banking facilities are redundant in other sections. A cursory examination of the matter, however, shows that this statement ignores the conditions precedent to the establishment of a banking institution. To assume that the organization of a bank is a haphazard undertaking in which provincial preference and bias play a predominant part, is to disregard the fundamental business reasons responsible for the establishment of a bank. Capital must be raised and customers must be attached for a bank as for any other business enterprise, and it is natural for the organizers of a bank to select that community in which success is most likely to crown their efforts. An examination of the figures prepared by the National Bureau of Economic Research, indicating the relative wealth of the different states in the United States (as measured by the income of the chief citizens thereof), shows that the Middle Atlantic states have an income 700 per cent higher than the states of the Rocky Mountain district, and that the states in or proximate to the Mississippi Valley have an aggregate income 400 per cent higher than the states along the Pacific Coast. It may not be amiss to note again that branch banking might help to remedy the condition so frequently decried. The inauguration of a banking institution in a community comparatively isolated is much more likely to be

effected by an already existing institution with large resources and a trained personnel than by a group of local business men perhaps quite unfamiliar with banking principles and customs. Moreover, the prestige of a large parent institution is often sufficient to permit of substantial economies in operation—such as an inexpensive bank building and a smaller but more efficient personnel—which could hardly be used by a new local institution without the risk of disparagement in the eyes of prospective customers.

BANKING STRENGTH AND NEW WEALTH

While the strength and soundness of banking institutions are not susceptible of accurate measurement, nevertheless they are more satisfactory criteria of the adequacy of banking facilities. Strength and soundness do not signify the same thing. The generally accepted measure of strength of a bank is the size of its capital and surplus accounts, since capital and surplus combined represent a fund of ultimate protection for the customers of the institution. Soundness, on the other hand, is judged by the quality of the bank's investments, this quality being tested by the ability of the bank to fulfill its obligations to its customers on demand. The facilities that a bank can offer to a community engaged in the production of wealth are determined by the strength of its capital fund and the soundness of its investments. The generally accepted relation between capital and surplus and the lending power of the bank, as gauged by its deposits, is now deemed to be 10 to 1; a higher ratio indicates an overburdening of the capital resources of a bank, a lower ratio suggests subnormal activity. Apart from the minimum capital requirements expressed either in Federal or in state statutes, the development of

banking strength through an increase in the capital and surplus accounts depends largely upon the policy adopted by the administrative officers of the institution. Similarly, the soundness of a banking institution rests upon the sagacity and shrewdness of the officers in control of its investments, except for a modicum of regulation imposed by statutory law and decisions of courts.

There are other factors conditioning the comparative strength and soundness of banks which are not entirely dependent on changes in banking laws and customs. Changes in the rediscount facilities of the Federal Reserve system, the use of the check, and, with them, a growing use of standardized forms of commercial paper, have vastly augmented the credit facilities available to business men engaged in the production of wealth, not alone through expanding the amount of available credit, but in creating a tone of strength and soundness which was not existent when bank accounts were taboo and the form of commercial paper differed materially from one section of the United States to the other. Enactment of more rigid banking laws and the introduction of more stringent bank examinations have likewise increased the strength of banking institutions and hence enhanced their effectiveness for the production of new wealth. A considerable amount of work yet remains to be done in our states, in order that banking institutions may be subject to uniform restrictions and supervision.

Adaptability denotes the fitness of an organization and of the business to the community. The more nearly the standards of

standards of the community, the more adequate its facilities are likely to be. Not that banking institutions should follow the business practices of the community where analysis demonstrates such practices to be unsound, nor should a bank necessarily refuse to inaugurate inherently sound principles of banking and credit for fear of encountering the antagonism of business men in the community, but usually the bank which offers larger accommodations is the institution which is conducting its business agreeably to the greater number of its customers. However, adapting the form of organization and practice of a bank to the community which it serves is so closely allied with the character of service, that it is appropriate to proceed to a second factor conditioning the relation of banking and new wealth.

BANKING AS A PROFESSION

The administrative policy of banks is intimately connected with the production of new wealth. Mere existence of banking facilities in a community in no sense assures that community of adequate service. Business enterprises seeking to use the facilities which banks provide must convince the banker of the soundness of the enterprise seeking funds and at the same time submit plausible evidence of the desirability of utilizing the funds in the manner indicated. Assuming that the enterprise is inherently sound and that the funds requested are to be used in the process of production, then whether the banker responds to the measure of his opportunity depends on the scope of his business perspective and the nature and technique of his credit policy.

The significance of business perspective as a factor affecting the administrative policy of a bank has not always been appreciated. Administration of banking institutions in the United

States has been handicapped by the prevalence of the impression that banking was a business that demanded no training and had no technique. Criticism was encountered by individual bankers, not because they consciously sought to defeat the purpose for which a bank is supposed to exist, but because they lacked the point of view which dignified the profession of banking in the older commercial countries of Europe. Part of the difficulty was due to an incomplete understanding of the philosophy of bank credit and the principles governing the extension of credit. Banking was regarded as a carry-all for successful business men. Business men seeking a position of honor in their community immediately bethought themselves of a banking institution, and, consequently, the organization of a bank was in their eyes merely a business of soliciting the necessary number of accounts, hiring a minimum number of employees, securing a satisfactory site and installing a burglar proof vault. That banks had a public service to perform was beyond their purview, with the result that banking institutions were founded without any conception of their economic responsibilities to the community in which they operated. The assumption that banking was a business in which the pinnacle of success was synonymous with maximum profits reflected itself in the administrative policy of the institution. Loans were extended, securities were floated, investments were made with the primal purpose of increasing the dividends of the stockholders of the firm. Service to the community seemed to be a secondary consideration. Although the public provided the major part of the working capital of a bank, its rôle at best was grudgingly acknowledged, and the obligation of every banking institution to promote the production of wealth to the maximum of

its capacity within the bounds of safety was only partially discharged.

REVISING LOAN AND CREDIT POLICIES

Fortunately this point of view is rapidly disappearing. The exigencies of the war compelling banks to assist the government and industry induced a number of fundamental concessions in banking policy. A conservatism which insisted emphatically upon "being shown" in every request for credit began to be modified by a progressiveness that had the vision "to see." The old idea of a bank being a pawn shop *in magnifico* has today been supplanted by a rational liberality that seeks to sponsor the development and growth of new productive enterprises. Extensions of credit are no longer visualized solely in terms of gray-haired executives with wads of collateral to the exclusion of younger managers with small, sound, and growing businesses. Much remains to be done by way of establishing a more intimate relationship between banks and business enterprises. The reluctance of some business men to resort to banks for working capital is as much attributable to the predatory tactics with which they have been confronted as to the old-fashioned desire to keep out of debt. For example, the proprietor of a reasonably large enterprise stated recently that he preferred to carry his working capital fund in the form of a bank balance or short term investments, even though it involved a higher cost of financing, than to borrow working capital from the banks and thus place in the hands of predacious bank directors engaged in the same business, confidential information that might eventuate in his commercial undoing. On the other hand, unlimited opportunities exist, in the United States especially, to establish an entente cordiale between the business man and

his bank based upon mutual trust. In view of the signal success which has marked the affiliation between banks and kartels in Germany, the feasibility of such a relationship brooks no question. By virtue of his many-sided contact with business enterprises, the banker is in a position peculiarly adapted to counsel business men concerning the management of their enterprises.

There is another element entering into the relation between banking and the productive processes which merits more attention than it has thus far received. Professional men, typified by lawyers, engineers, chemists, etc., represent conditions the mechanical processes of industry, have thus far been accorded but scant attention by commercial banking institutions unless their request for loans has been accompanied by the presentation of any-class collateral. It is evident to anyone familiar with the facts that professional men are seldom in a position to accumulate collateral commensurate with the importance of their services in the productive process until they have reached an age where the personal element of the credit risk becomes hazardous. Certain classes of banks presumably created for the purpose of making loans to professional men have not as yet reached the point where they can attract this clientele. Whether loans to professional men are within the range of commercial banking may be open to discussion, but in any event there exists here an opportunity to enlarge the administrative policy of a bank so as to include therein loans to this class of individuals who create and direct the processes of production.

CHANGE IN CREDIT TECHNIQUE

The transformation in the philosophy of bank credit has reflected itself in

changes in the technique of bank credit. Handshake credit predicated on agreeable personalities is being supplemented by a scientific analysis of business enterprises seeking funds. Emphasis is being placed upon figure facts and significant progress has been made in credit work through careful analyses of financial statements. It is not to be assumed, of course, that the personal element involved in every business enterprise is ignored in the new credit technique. What has happened is that bankers are increasingly receptive to figures which set forth inexorable records of the status of a business enterprise. Thus definite progress is being made in the development of a scientific approach to credit extension; during the last five years banking literature has been enriched by texts and monographs elaborating the principles of comparative ratio analysis. While the possibilities of statistical analysis of business enterprises is yet in its experimental stage, it is nevertheless the aim of banks and credit men to formulate principles and methods of analysis of the capacity of the business man which will serve as an accurate check against the information relating to his character.

BANKS CANNOT AVOID RISKS•

Recently opinions have been expressed that the enlargement of activities of commercial banks occasioned by the last war gave to many a false conception of the use of credit and even distorted the viewpoint of some bankers. It was to be expected that the increase of loans secured by collateral, consisting of government securities and fixed assets of business enterprises, in conjunction with the sudden collapse of prices and business activity in 1920, should induce banks to become more cautious, but it would be unfortunate if the exigencies of war and the lack of familiarity with the principles of business cycles were used to constrict and warp the loan policy of commercial banks. The lesson to be extracted from the disastrous effects experienced by individual banks following the crisis of 1920, is not that risk can be completely avoided by a progressive bank, but rather that the principles governing the operation of business enterprises, individually and collectively, ought to be painstakingly studied. Progressive commercial banking conducive to the maximum production of wealth can hardly be conducted without the assumption of risks.

Chemistry as a Source of New Wealth

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Take interest, I implore you, in those sacred dwellings which one designates by the expressive term: LABORATORIES. Demand that they be multiplied, that they be adorned: these are the temples of the future—temples of well-being and of happiness. There it is that humanity grows greater, stronger, better.

LOUIS PASTEUR.

CHEMISTRY is the keystone science. It is the cardinal creative science. The earth and all above, upon and below its surface is built of the ninety odd chemical elements, and their multifarious combinations. Subtract these elements and their compounds from the universe as we know it—and there is nothing left. Our conscious beings, and our unconscious environment, are made of the same material. Thus we note the fundamentality of chemistry.

But we cannot ignore, in this connection, another equally fundamental science—namely: Physics. Together these sister sciences—branches of the all-important doctrine of matter and energy—are the substructure whereupon rests all the other sciences. Chemistry is our substance, and chemistry and physics control our very lives. Each breath—each thought—each pulsing heart throb—are in their certain jurisdiction.

But despite this all-importance of chemistry, man has but recently come to peer beyond its bounding fringes—and only then because of forced interest. The transient modes of life—the swiftly changing problems of his earthly tenantry have urged him more and more to the intimate study of this inexhaustible science. And as scurrying time builds up its scheme of centuries man will continue to extract from

this prolific source wonders and wonders that shall reach beyond his wildest expectations.

Yet all these were, when no Man did them know,

Yet have from wisest Ages hidden beene;
And later Times things more unknown shall show.

Why then should witlesse Man so much misweene,

That nothing is, but that which he hath seene.

THE TRAIL OF CHEMICAL PROGRESS

Indeed in chemistry the accomplishments of yesterday dissolve without a trace into the vastnesses of tomorrow's possibilities. Yet we cannot belittle overmuch these accomplishments of other years, for it was an early chemical discovery that carved the first deep line of difference between man the time binder, and beast the space binder. This was out in the primeval timberland when man by accident came upon that chemical force called fire. This may be truly called the primary "epoch-making discovery"—and the cycles of human progress have ever followed in the wake of such discoveries of chemical things and chemical forces.

This fire agency was forthwith put to work in the extraction of the then noble metals from their respective ores. Thus was heralded first the age of bronze.

Born of fire next came iron—possibly the master creation of the crude chemist of the past. Tools of chipped stone, crude in their conception and cruder still in use, gave way to sharper blades of bronze, and then iron and tempered steel. The empiricism of the blunt stone chisel changed to the knife edge precision of instruments built of steel. And consonant with the change in tools came a like change in the thoughts and ideals of man. The blunt mentality of the cave men keened itself in the temper of the times to the philosophic sharpness of the later age thinkers. Better tools meant better tasks, and better tasks meant brisker thinking.

Brisker thinking soon realized that systematic study of the natural sciences would bring to light still greater things. Thus the abstract philosophies of Athens and the flighty hypotheses of the dreaming alchemists, who sought the impossible though often stumbling upon the profitable, gave way to the methodical researches of a new group of learned men. These men studied carefully the fundamental chemical and physical laws so that with their understanding useful discoveries would in time become more common. They would be incidents, not accidents.

Through the efforts of such men as Bacon, Huxley, Dalton, Lavoisier, Mendeléeff and many other inveterate workers in the realm of pure science—there dawned upon the world a new light.

Like the beams of a superlative searchlight tearing apart the night, came finally the realization of the importance of this science of chemistry in its manifold bearings on life and on the living. But it had taken the world a tedious span of time to recognize the practical values of this great science. Not indeed until the commencement of the 19th century did it become well established as a most important factor

in shaping the destinies of men and nations. Since then its progress has been in leaps and bounds.

The trail of chemical progress through the centuries followed step by step with slow convincing tread. It led from the idea of the chemical element to the isolation of the then important elements, the establishment of the quantitative laws of chemical combination, the application of the atomic theory to explain chemical reactions, and of the idea of valency, to molecular constitution and structure, and thence to the study of the intimate constitution and property of the atom. To-day although "the trail is still awinding" no one can foretell its ultimate destination.

There is no end to its promises; there is none of its promises that may not be fulfilled. Much has been discovered, but there is an uncharted domain yet untouched whose boundaries are too wide for conception. Nor can we penetrate this vastness by sheer imagination. For in chemistry dreamers seldom get ahead. Sir William Pope in a recent lecture expressed the following sentiment:

All inquiring minds in science are accustomed to peer into the future in an attempt to discern the directions in which progress is possible; hundreds of imaginative writers have tried to foretell the effects upon human life which will accrue from coming advances in science. In this connection I desire to submit one ruling principle—a principle which is admirably exemplified by the directions of progress during the present century and which appears to be as yet but ill recognized. The principle is that all scientific prophecy which goes outside what will obviously and logically result from the normal and unsensational development of the existing scientific position is necessarily false. No one in 1900 ever conceived anything so sublime and yet so fantastic as the achievements of the past quarter of a century.

"Chemistry as a Source of New Wealth" opens then a fertile field for pert conjectures. But only with chords already sounded is it well for us today to tune our prophetic symphony. The painful deductions made by careful observers of experimental facts are at our disposal, and we can sense much of their meaning. Our wide outlook gives us a chance to safely predicate the future.

Let us briefly inquire into the relations between chemistry and industry.

CHEMISTRY POINTS ROAD TO CONSERVATION

In this connection the outstanding theme of the current generation is the speculation concerning the depletion of its known storehouses of energy. The whirling progress of the present, so alarmists state, is consuming its capital of resources. The world is being impoverished and posterity embarrassed by the lavishness of the current generation, in its expenditure of coal and petroleum residues.

To the scientist, however, this gives but little concern. He knows that posterity will not be long embarrassed, for with the insight already gained into energy changes of reacting chemicals, and the possibilities of growing our motive fuel as we grow our body food fuel—new sources of energy will have been found long before our natural resources shall have been exhausted. Posterity with its scientific inheritance can well grapple with its own problems. In this as in all things—"sufficient unto the day is its own troubles."

Nor do we ignore in this connection the need for conservation born not out of denial, but out of a careful nursing of our present stocks. Let the wheels of progress not stop, but rather proceed unhindered with watchful expenditure of its available energy stores. Chemistry leads the way, and the way

of chemistry is neither wasteful nor unmindful of tomorrow.

In England, after Waterloo, all good Englishmen planted acorns so that Britannia might ever rule the waves and never lack for sturdy oak wherewith to build her battleships. It was an idea consummated in pure loyalty, but it bespoke no real vision. For the Englishman builds his battleships today with bands of steel—and his oaks are only fashioned for his coffin.

Concern over the exhaustion of our natural fuel resource is just as unseemly and irrational as the oak planting notion. Of course conservation is wise and necessary—but there is no need for extravagant alarm in this direction. Dr. Slosson, author of that marvellous book *Creative Chemistry*, in his inimitable style handles a prophecy of other fuels in this manner:

But our supply of petroleum will sometime run short, in a dozen or fifteen years at the present rate of consumption, according to the estimates of the oil in the ground by the U. S. Geological Survey. Sooner or later at any rate we must grow our fuel, as we grow our food, from year to year. It is interesting now to recall the prophecy of Dr. Diesel, shortly before his mysterious disappearance from the night boat that was carrying him from Germany to England just before the war. He foresaw the time when mineral oil would be exhausted, and then, he said, the supremacy of the sea would go to that power which possessed the most tropical territory for growing vegetable oil. Dr. Diesel has been dead but ten years, yet already in Africa boats are run with palm, cottonseed, and peanut oils. Diesel engines are reported to run on less than ten ounces of cottonseed oil per British horsepower-hour at a thermal efficiency of 24.5 per cent.

And growing our fuel is not nearly as impractical as it seems. We grow a great deal of it as it is. Take the production of alcohol for instance. A little active seed is planted. Out of

the earth and out of the sun-flooded ether the little seedling draws its sustaining energy—and binding the energy in its make-up it grows to full maturity. Man cuts it down, soaks it in water awhile, and through the agency of an added yeast cell, changes its starch to sugar and thence to alcohol. The energy bound by the plant is now contained in the alcohol, whence it can be promptly utilized when needed. In alcohol there is great promise as a fuel, for the forces that the little seedling drew out of the earth and out of the sunlit ether are now locked in the atomic embrace of the fluid alcohol, only waiting an opportunity to work. One only has to imbibe a portion of it to know its availability in this direction.

It is in the integral forces of the inner atom, however, that man may some day find his greatest fund of energy. The physico-chemical studies of radium and radium emanations are still very incomplete, but we know that compressed into the atoms of this amazing element is a measureless amount of electronic action.

Someday perhaps, this or solar energy and other similar forces will be strong in the service of man—whirling the buzzing wheels of industry—changing night to day—mounting the dizzy avenues of air and coursing steady through the lanes of ocean commerce.

SYNTHETIC CHEMISTRY INCREASES PRODUCTION

President Coolidge, speaking recently to the delegates of the American Chemical Society, praised chemistry's service to the nation in peace and war, declaring that the

... work of the chemist has raised the level of our civilization and has increased the productive capacity of the nation.

Modern life has become extremely com-

plex. We are enjoying comforts and advantages undreamed of a generation ago. These have become possible to a large measure through the knowledge and work of the chemical profession. Industry is learning to apply the knowledge of the chemist in its processes. Each step by which the products of the soil, the forest, and the air, are converted into commodities of every-day life, requires the expert assistance of the chemist and the chemical engineer.

Whenever nature's bounty is in danger of exhaustion, the chemist has sought for a substitute. The conquest of disease has made great progress as a result of your efforts. Wherever we look, the work of the chemist has raised the level of our civilization, and has increased the productive capacity of the nation. Waste materials, formerly cast aside, are now being utilized.

Industry must be vitally interested in chemistry for it depends upon chemistry and chemical forces for its existence. The conversion of natural resources into commodities of every-day life or else their synthetic production, is the function of the greater part of American industry. And it is to chemistry that industry must and does turn for the consummation of these efforts.

The great organic solvent industry and the dye industry afford ample proof of chemistry's service to industry. Not many generations ago only a king's robe was dyed with Tyrian purple, for the color was immensely expensive. Millions of little molluscs from the Mediterranean bed emptied their little sacs of pigment so that kings and only kings, might sport this special color. Today from the ugly coal tar, the chemist by divers changes secures a Tyrian purple more marvellous than ever dyed an ancient kingly robe, and yet so cheap that little slum-girls wear their clothes giddy with its color.

Yet chemistry, juggling its molecules, is only an infant magician. Each year brings out a host of newer dyes and

other organic products. There are endless combinations still untouched.

Agricultural industry owes chemistry a huge debt of gratitude. Time was, indeed, when the world's supply of fixed nitrogen (fertilizing, nutritional nitrogen) so essential to the promotion of life, was rapidly dwindling away. Burning forests consumed much more of this very necessary nutritional nitrogen than the sun and germ and thunderstorm could replace. Then to make matters worse man turned to burning his brother, instead of burying him in earth whence he came. Cremation was thus a chemical crime, for it robbed the earth of much potential fertilizer. Had this process of depletion continued for many millenia with no replacement, the world would have been short of fixed nitrogen—a calamity nigh short of destruction. For a barren, moonlike earth would fail to feed its human parasites. But along came the chemists again, and captured the useless free nitrogen of the air—changed it to fixed nitrogen and made the world safe evermore for hungry democracy. This discovery has notably increased the fertilizing of the soil and the conditions of rural industries are thus vastly bettered.

Biological chemistry has also found other and will continue to find new sources of fertilizing agencies. It is nothing strange today to call to the farmer's aid a willing, tireless army of little germs to prod his backward crop. These little biologic exhorters hang on to the grain rootlets, gather free nitrogen from the air, change it into assimilable, necessary compounds, and feed it to the plants. Thus can the most barren soil be made to support useful vegetable life.

Turn now to the so-called synthetic phase of industry. It is here indeed that industry will ever find its greatest profits. For the modern synthetic

chemist builds his compounds as a builder would his home. First he draws a graphic picture of his structural formula just as the architect conceives his plan. Then he brings together his materials and fits them to their proper corners. Here he tacks an ethyl group or there an arsenic atom, and he barter at will his funny molecules until at last is formed his promised compound. This is complicated chemistry indeed, and this was the chemistry that unfortunately gave Germany its fatal conceit.

FOOD FROM TEST-TUBE AND CRUCIBLE

The common assets of our civilization, such as soap, the alkalies, food products, glass, rubber, celluloid, sugars, alloys, and medicinal substances, all are of the warp and woof of synthetic chemistry. Witness this recital, an omen of the coming day when even food shall come from tubes and crucibles.

Starting with beef tallow they get out the stearic acid which contains 18 carbon atoms in its molecule. Then by oxidation they cut off one carbon atom from the chain, leaving 17, a compound known to chemists as margaric acid. This is then recombined with glycerine forming a neutral fat, which can be easily digested by diabetics without leaving harmful acid residues in the blood.

Neither margaric acid nor any fatty acid with a long chain of an odd number of carbon atoms occurs in any natural fat or oil. Some such compounds have been made in the laboratory but only a gram or so has been produced as a chemical curiosity. This is the first time that a purely artificial food has been manufactured in hundred pound lots for use as a regular article of diet.

Quoting again, but from another source, listen to the story of Berthelot, the famous chemist of France.

The problem of food is a chemical problem. Whenever energy can be obtained

economically we can begin to make all kinds of aliment, with carbon borrowed from carbonic acid, hydrogen taken from water and oxygen and nitrogen drawn from the air. The day will come when each person will carry for his nourishment his little nitrogenous tablet, his pat of fatty matter, his package of starch or sugar, his vial of aromatic spices suited to his personal tastes; all manufactured economically and in unlimited quantities; all independent of irregular seasons, drought and rain, of the heat that withers the plant and of the frost that blights the fruit; all free from pathogenic microbes, the origin of epidemics and the enemies of human life. On that day chemistry will have accomplished a world-wide revolution that cannot be estimated. There will no longer be hills covered with vineyards and hills filled with cattle. Man will gain in gentleness and morality because he will cease to live by the carnage and destruction of living creatures. The earth will be covered with grass, flowers, and woods and in it the human race will dwell in the abundance and joy of the legendary age of gold—provided that a spiritual chemistry has been discovered that changes the nature of man as profoundly as our chemistry transforms material nature.

The current age is the Age of Steel. Steel is a chemical compound. Comparatively a recent discovery, this useful substance is still far from perfection. Contaminated with traces of certain material it loses its strength—yet a little of something else doubles its durability. Other alloys, kindred to steel, are waiting for the co-operative forces of chemistry to lift them to a wider sphere of usefulness. They are simply itching to be discovered. In England today there is a great deal of study under way involving the use of pure metals instead of the near-pure ore products now in use. None of the useful metals find any industrial applications or a state of purity, for all are used as alloys with other metals. Thus since all of the alloys now used are imperfect, it is conceivable that they might ap-

proach perfection if instead of the crude elements used in their formation there are used metals more refined or pure.

With this in mind the National Physical Laboratory in London is now just initiating an experimental investigation for the purpose of studying the alloys of pure iron and chromium, and this, if successful, will be the first occasion on which the systematic study of alloys of pure iron with another pure metal has been undertaken.

This is a type of research in pure science which is bound to be redundant with industrial blessings. It is upon the support and maintenance of this spirit of research, and upon the careful training of picked men to carry on the task that the future of chemistry and the consequent reward of industry depend.

CHEMISTRY CONTROLS FUTURE OF MEDICINE

Turn now to chemistry in the service of medicine. It was a chemist and not a physician that brought the great truth to medicine. This was Pasteur, the son of an humble tanner from Arbois, lifted by the buoyancy of clear genius into that rare realm of pure science, whose boundless domains few humans are privileged to know; Pasteur, the living contradiction of Pope's famous couplet:

One Science only with one genius fit,
So vast is Art, so narrow human wit.

But not so with Pasteur, for his inspiration led him on from science to science, explaining the old and establishing the new; harnessing chemistry to agriculture and biology to industry. And he was a pioneer, a blazer of new trails. The roads which he chose were the hardest, but they led always to kingdoms that had the things which men sought and longed for, but could not find for themselves.

This was the man who discovered the biological basis of infection. After him followed the discovery of antiseptics used in combatting bacteria. Then came also the discovery of the anesthetics: ether, chloroform, and latterly ethylene, all evolved in the clinical laboratory.

The last quarter century has flooded the world with medicinal chemicals derived from every conceivable place. From the cellular spaces of roots and rhizomes, from fractions of crude coal distillate, from desiccated animal tissues, from the minerals in earth's bosom—everywhere—have come remedial agents in response to the chemist's call. And countless more await his beckoning.

Nor indeed is the modern chemist satisfied with the products of Nature's handiwork, for in some respects he can even excel Nature at her own accomplishments. He has bettered her best colors—he has created out of a mass of molecules strange compounds that never existed before. He is unearthing many of her erstwhile inviolate secrets.

In no field of endeavor has chemistry accomplished more, however, than in this field of applied medicine. The anesthetics and analgesics, most of them, in the concrete, products of the laboratory, have lifted heavy burdens of pain from the shoulders of a weary ailing world. Sickness and travail still walk in the land, but their tread is not nearly so heavy as in the days before ether and chloroform.

In the battle against infection chemistry is still searching and will continue to search into the long years. Here are many problems, stubborn and unyielding, but which under the battering rams of real research will as certainly show a breach in years to come.

Take for example the tedious search for a specific remedy for that dangerous

African sleeping sickness. Learn first that this vile disease, a parasitic infestation, renders it physically impossible to progress with the exploitation, commercially and otherwise, of central Africa. Because of its depredations this rich section of that huge continent hoards its treasure as in an ancient unrelenting grave.

The little Tsetse insect, procurer by bite of this vile infection, for many decades locked the treasure troves of Africa's wilds secure against organized colonization.

But where organized colonization utterly failed to gain a foothold—organized chemistry at last has secured the priceless sesame. "Bayer 205," chemical kindred to the renowned 606, promises to cure the sickness and thus make half a continent habitable. Germany, unfortunately, still festering in the toxins of her decomposed conceit, dabbles with this cure and seeks to keep its composition secret. She offers it in return for colonizing concessions. Meanwhile information comes that it has been happily duplicated by French chemists. More power to them. Such indeed are the glorious opportunities of chemistry, and its equally glorious accomplishments.

So much done and still so much to do.

The causative factor of the great white plague is established—the chemist is searching for the remedy—and he will continue to search until the last lone molecule hangs on to the right place on his remedial structural combination. Cure may come from another source, but the chances are ninety to one that when it comes it will only be again essence of the chemist's crucible.

Cancer is silent with its secret. But it will out with it ere long, and shortly thereafter will certainly come the blessed antidote.

Witness the revival of animal medicine—an attempt to treat disease with Nature's own remedials. Time was when crude botanic drugs from India's jungles or Afric's teeming wilds filled up the shelves of the old apothecary shop. Before that it was essence of bone and elixir of blood—liquid of mummy and spirit of human flesh. Then for a while the world went crazy over coal tar, and most of the medicines came from the garbage heap of the gas works. Today the stockyards of the Middle West are claiming their share of drug shop patronage. The bleating calf, the gentle sheep, slovenly sows and other children of the four-legged race, furnish once more a great bulk of the drug store's healing agents. The day of "extract of menagerie" is still with us, even if the "elixir of botanical garden" is no longer the vogue.

To corroborate the old quip that history truly repeats itself, comes now insulin, the latest addition to our animal armamentaria for fighting disease, for it also is a glandular extract of quadruped. Insulin is designed to fight the dreaded sugar sickness known as diabetes, and insulin after all is second cousin to spirit of bone and essence of blood, for it was out of the suckling calf that Banting and his brother chemists secured the original lot.

But now we are told with definiteness that all of these gland secretions are only chemical compounds which can be duplicated with products made from coal tar and its various derivatives. Pretty soon the chemist claims he will duplicate them all, and then a gland that fails to function right will lose its place and right to serve. So we can now hope for the day when we will carry a vest pocket case containing the chemist supply of compressed extracts, and thus replenish at will our glandular deficiencies. Until then, however, we must depend upon the stock yards to

supply our functional shortcomings with crude and empiric extracts of glands from pig or cow or gentle sheep.

But these are only a few illustrations to bear testimony to the fact that the opportunities of chemistry in the field of medicine and public health are without number. Dean Edsall of the Harvard Medical School pointedly evaluates the services of chemistry in this important art in the following statement:

The prospect of developments of the utmost importance through chemistry in matters relating to medicine and health in the coming decades is really enormous.

The progress made in recent years has been such as to warrant confidence that it will be one of the most important lines of progress in the next generation. This is, of course, exceedingly technical work, and fine training is required in order to accomplish anything in it.

The future progress of medical investigation in no small measure waits upon the results of such chemical research, and the future of medicine depends largely upon the progress of chemistry.

"Chemistry as a Source of New Wealth" was the topic whence this dissertation had its inception. We have wandered far from our trail—it is in the dense woods that we now find ourselves. The cross trails and tree signs have led us astray—but the sun though now obscured still comes up in the east and sleeps beneath the west line, and whether the reader, trailing with us, has "kenned the light or nae"—chemistry is still prolific in its promises and real wealth is in its vast dominions.

But its promises are not without restrictions. Its treasure troves are not for chance discovery. Unstinted penance shall be made at Pasteur's "Temples of the Future—Temples of Well-being and Happiness—the Laboratories"—for it is there that chem-

istry's contribution to the world wealth waits for the well-trained seeker.

In this connection the following report of a special committee of Harvard University Board of Overseers is very pertinent:

As competition increases the successful man will, more and more, be the man who allows nothing to be wasted, but adopts the most efficient processes and devises new ones still more efficient; who works up his by-products into more useful and further valuable substances; who economizes energy whether this energy comes from coal or water power or human labor.

The field is too large and chemical laws too complex to have the results come accidentally.

They can be accomplished only by a systematic investigation of the whole field of chemistry.

Only upon the study of pure chemistry and the laws which underlie it can be built the practice of chemical technique, just as our whole modern technique of electricity was built upon the purely scientific experiments of Faraday.

The present attainment in chemistry has been due chiefly to investigation, undertaken entirely in the spirit of pure science, for science's sake. Upon the support of this spirit, along with the education and training of men fitted to carry on the work, must the future of chemistry depend.

FRINGING THE HINTERLAND OF SCIENCE

The advance in the last fifty years achieved by scientific method based upon laboratory work is astounding. There is, however, vastly more to be learned. In many of its branches investigation is only at its beginning. Those investigators who have reached the frontiers of knowledge see wide unexplored regions ahead full of problems and full of possibilities.

But mere recognition of the importance of chemistry is not enough to ensure the usefulness of the science in the future. Active steps must be taken to enlist, train, and support chemical investigators and routine workers and to build, equip, and maintain adequate laboratories.

Truly the time and thought investment of the early investigators in the fundamental sciences has already paid tremendous interest. But this is a trivial fraction of its potential returns—for the time will never come when chemistry shall cease to be progressive, for, as Berthelot stated, "Chemistry creates its object and in creating it controls it."

Indeed, the subject of "Chemistry as a New Source of Wealth" will be just as timely in June, 2024, as it is this rambling-rose day in June, 1924.

The Place of Human Sciences in Modern Organized Business

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THAT mammoth machine called "business" is designed to meet the wants of men. Its function consists primarily in the production and distribution of commodities which meet these wants. In any given instance the completed process consists of a series of value transfers, each of which may be measured in terms of material, time, and money. The value equation is complex even in the transfer of a garden product from farmer to housewife; it is almost infinitely complicated in the case of the delivery of a Rolls-Royce to the consumer.

Business began with an exchange of commodities, where each of two or more individuals, in consequence of skill, or lack of it, or the chance condition of the place of abode, enjoyed possession of a given necessity in excess of his immediate needs, while he suffered want in another direction. The transfer involved necessities for maintenance of life. Modern organized business is still concerned in transfers of this nature. But the definition of necessity has undergone vast change. No longer can it be limited to its original biological meaning. Social organization and life within the social group have created necessities as essential for modern life as were the simple materials of exchange for the life of primitive man.

The early transfers first insured existence and then brought about an easement of the rigors of existence, introducing elements of comfort; beyond certain limits, these comforts became luxuries. The limits of these

concepts cannot, of course, be exactly set up. They are essentially relative to the mental make-up of the individual,—his chronological period and place of abode. Similarly, present-day business is concerned in the transfer of values contributing to the comforts and luxuries of life. Here again the limits are relative. We may therefore say that modern organized business deals with the production and distribution of commodities contributing to the wants of men, *i.e.*, necessities, comforts, and luxuries.

INTRODUCING SCIENCE IN BUSINESS

In a wide sense, the principles and laws of the human sciences—sociology, psychology, and education—are vitally implicated in the program of organized business. These sciences, from somewhat different aspects, are concerned in the life of man. They first aim to discover, and then in an ever-increasing degree attempt to control those factors which contribute most to the individual, either directly or through the social group.

Whenever these factors are commodities or service of a purchasable kind, they must be included in the business equation. A definition of "necessity," "comfort," and "luxury," in consonance with the ever-varying complexities of life, and practical instruction as to distribution of an individual's earnings with reference to these three products of business will, in the long run, have much to do in the formulation of a general business program. Such a program can only be

based on an anticipation of the needs of men in these terms, and any prediction not substantially supported by the historical facts of social development may result disastrously. Organized business, therefore, finds its most important, and at the same time most perplexing, problem in the formulation of policy. Solution of the problem requires a fairly accurate prophecy of man's behavior under varying conditions, a few of which can be matters of certain knowledge,—others only of conjecture. Wherever these systematic observations have been made, and a body of knowledge, with reference to human reactions, formulated, business finds useful data for its purposes. Striking instances are at hand. Business concerns now are organized or enter upon a plan of enlargement only after a most exhaustive survey of population distribution, and indicated growth—natural resources with reference to development of industry,—general character of population as determined by industry—in reality a psycho-sociological study of probable consumers. Even the selection of the locality for one of a chain of cigar stores is determined by some such method. Further, the significance of this kind of data increases as the product in question, in consequences of economic and social change, tends away from the luxury and toward the necessity class. Business can no longer be firmly established upon predilection. On the contrary, the trends of human behavior, as they are formulated in the body of knowledge falling within the scope of the human sciences, must not be underestimated in the importance they play in a well-conceived business program.

In a narrower sense, business is now making use of the accumulated knowledge of the human sciences in meeting the wants of men. This has come

about in recent years through a realization that the waste in former methods of production was grossly uneconomic, and if continued unabated would result in shortage and deprivation. Material resources were being rapidly consumed and the minds of men turned to the problem of conservation to such an extent that it became a matter of national interest. As a last step in the present-day point of view, business is making every effort to conserve in the time element of production and distribution, to the end that the ever-increasing wants of men may be met. This phase of industry has thrown tremendous emphasis upon the human elements of industry—both men and management—and the desideratum is that of perfect adjustment of man to job. When this adjustment is accomplished, there is every reason to expect both maximum production per time unit, and contentment and stability upon the part of the worker.

JOB AND PERSONNEL ANALYSIS

The first effort on a large scale to study the problem of man-job adjustment was that of the psychological service of the American Army. Many studies of a theoretical character paved the way. Indeed, certain psychological studies formed decades ago contained the essential elements of present-day methods, and the results of these studies were in no sense unprophetic. But it required the crisis of the Great War to organize these findings and point to their utility. The peacetime army of industry, even before the war had ended, sensed the value of this new approach, and we are now in a phase of tremendous activity in this new field of applied science.

Specifically, organized business is now expecting from the science of psychology:

(1) An exact procedure in the task of job analysis.

(2) A method of personnel measurement.

A phase of production or distribution creates a job. The old method supplied the human agent merely by chance or favor, without reference to the specific demands. Nowadays, the job is first analyzed with reference to number of operations, the required balance of concentrated and distributive attention; the essential elements of memory involved in the series of operations; the demands upon disposable energy, the duration of the cycle of operations, and its production of fatigue. Each determination involves a scientific procedure with an adequate number of observations for statistical verification.

The second expectation—that of a method of personnel measurement—is far from realization at the present time. Despite the enormous amount of work being devoted to the problem by the science of psychology, and by psychologically trained men in the field of industry, only a good start is the net result to date. The problem requires a departure from traditional psychology, and in its stead the approach of clinical psychology. It involves a final analysis of intelligence, intellect, motive, competency, natural endowment, and methods of rating these factors *quantitatively*. Once the science of psychology has successfully solved this tremendous problem, the outcome of a given examination may be supplied to industry in a simple equation of personnel assets and liabilities, which will constitute at the same time a diagnosis and a prognosis.

Only the man with scientific training is capable of appreciating the vastness of this program, and the unlimited amount of detailed research which must be prosecuted before even an

approximation to a satisfactory scale of personnel management can be discovered. It is indeed unfortunate that so many have been led to believe that these scales now exist, and can be applied by any person of average intelligence, with the same degree of accuracy that he can use a yardstick. Indeed, the initial psychological analysis is far from completed. Only in the large can the various factors entering into a man's intelligence, or into his competency, be delimited, and so-called "measurements" are not much more than qualitative categories with recorded frequency of occurrence in selected groups.

Despite the limitations of personnel measurement now apparent, industry was keen to sense in the development of these measurements a mighty instrument to add to its equipment, and even though the methods are imperfect and only an approximation to the desired goal, the employment of such crude standards as there are has, in many instances, proved of great assistance in the increase of output per time-unit. The modern industry finds it no longer necessary to try a two-operation man on a five-operation job for a period of two weeks in order to determine his productivity. The old method of personnel selection is now recognized as too expensive in the waste of materials and the loss of man and machine time. A twenty-minute psychological examination in most cases serves to classify the applicant as a two-, three-, four- or five-operation man,—thereby materially reducing the former trial period.

With job analysis and personnel measurement giving us two distinct groups of data, the correlation of the facts of these several analyses practically creates a new operative task in industry. The man who parallels these facts and emerges with a usable

correlation will perform a most useful and economic function in industry. This work is the very essence of management—and its development, already begun, is certain to mark the next conspicuous development in the business world.

To be profitable, business must be stable. The whole fabric of industry rests upon the predictability of furnished product and its consumption. The material resources of production are amenable to exact measurement. The elements of human energy required in production are not so predictable, and in order to insure the human equilibrium so far as possible, organized business has taken the initiative and is now embarked on a nationwide program of social stabilization. These efforts express themselves in the establishment of retirement pensions, the development of recreational activities among workers, the economic adjustment to the exigencies of family and community life, and the supervision of problems of hygiene and health. These lines of activity are distinctly within the field of sociological investigation. The solution of these important factors of the workaday life goes far to disperse the disquietude and malcontent so fitfully prevalent in the laboring classes, and, in consequence, reduces to an astounding degree labor turnover, labor strikes, and inefficient operation.

RELATION OF BUSINESS TO EDUCATION

Broadly speaking, business is intimately concerned with the science of education. It is probably within the limits of truth to assert that this relation is more vital and far-reaching than any thus far included in the discussion.

(1. *Business and Vocational Education.*) In its early periods of development, business took the task of education for an occupation upon itself.

The form of the process consisted either of a period of apprenticeship, varying in length of service, and in which the novice enjoyed such instruction as his immediate superior was able to impart, or a more or less protracted period of self-adjustment to the requirements of a job. The compensation for such apprenticeship was relatively small, industry thereby securing in the latter period of the apprenticeship productive work at a relatively low wage, which was viewed as a compensation for the initial period of unproductivity. The very rapid development of machinery in all lines of industry, apart from the manual trades, is creating a demand for workers capable of immediate economic production. The problem of supplying such workers to industry is being rapidly undertaken by the school systems of the country, as well as by many private institutions. The curricula of schools for students going into industry are laden with courses of an extremely practical character, which are taught by men and women proficient in the trade or occupation, and at the same time competent teachers. This naturally very much shortens the period of preparation, so that there is an ever-increasing army of well-trained competent workers applying for positions in organized business. Their employment obviously very greatly accelerates every step in production and transfer. Not only is this important to organized business but it is a very exigent development in the theory of education and, in consequence thereof, is without doubt coloring the whole trend of modern educational thought. Once a sound principle of procedure has been formulated, the advantages accruing to business will be almost immeasurable, and education as a science will have made its most conspicuous and at the same time its most useful step forward.

(2. *Education and the Products of Industry.*) It is perfectly obvious that a very considerable factor in organized business is the final transfer of a commodity to the consumer. It is not necessary to educate people to the use of biological necessities; instinctive demands of the human organism must be satisfied. Modern science, however, makes it possible for these demands to be met in a way most beneficial to the organism. Within the memory of man, many food products have been developed with expenditure of infinite amount of scientific knowledge and technique. Industry, to produce these materials at a profit, found it necessary to create a demand, and this is brought about by a liberal educational campaign promoted largely through the medium of advertisement. In recent years, we are appraised of the fact that sauerkraut, quite apart from being a noxious mass of semi-decayed cabbage, enjoyed locally by people with mildly vitiated appetites, is in reality a food product possessing the highest virtues! This fact is even more conspicuous in the matter of education of the public to the use of materials contributing to their comfort and their luxuries. The professional advertiser, in the best sense of his profession, is an educator.

(3. *Business and Technical Education.*) This point can be covered with mere mention. The whole complicated machine of industry has developed through the creation and perfection of mechanical appliances—the direct result of the application of the sciences of mathematics, physics, and chemistry to the field of industry.

At the present time there is no more obvious and undebatable dependence in the field of human endeavor than that of organized business on technical education. The recognition of this fact has manifold confirmation in the endowment and support by business of institutions supplying such education to young men.

(4. *The Profession of Business.*) The need of men in business, professionally trained to correlate and organize the various factors of materials and men upon which business is constructed, is hourly becoming more urgent. The product of the technical schools is fairly satisfactory, but in most instances the man so trained, thrust into positions of responsibility outside his specific preparation, finds himself confronted with pressing problems of organization, of co-ordination, even of the formulation of policy, for which his technical training has given him no safe approach. Heretofore, the supply has been fitfully and in many instances unsatisfactorily met through the "school of experience." With the appearance of the man professionally trained in these activities, business will experience marked acceleration, and society will ultimately harvest the benefit. This type of training is the goal of the Engineering-Economics Foundation, created some four years ago; the method is that of research of industry from within; the program as a whole constitutes the most scientifically conceived and far-reaching application of the science of education to the business of the world thus far proposed.

The Place of Beauty in the Business World

By HUGER ELLIOTT

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AMONG the diverse and distracting agencies which play their parts in our present-day life—the voluminous newspapers, the ubiquitous “movies,” the call of the radio, the feverish movement of peoples by day and by night on land, on sea and in the air, the appeals of religion, of politics, of business, the publishing of magazines and books, the activities of schools and colleges, the unending whirring of machines making millions of articles a month, and the buying and selling of these—where, among the complexities of twentieth-century existence, is there room for art?

Not in the newspapers. The exceptional paper may allow the subject half a page in a Sunday magazine supplement, but through the week, nothing. When Mrs. Smith-Robinson (who is “socially prominent”) erects a memorial window, the fact is mentioned, since that is “news,” but we are not told whether the memorial is or is not a work of art. Should it, by happy chance, be a work of art the reporter would not know it—and even if he did, the fact that a beautiful window had been erected would be of slight interest to the public and would not be reported. When a municipality unveils the statue of a leading citizen we are not given a critical discussion of it as a work of art; often even the name of the sculptor is omitted as being of little importance, although the members of the committee in charge of the dedicatory exercises are named in full. The newspapers offer no help in forming the taste of the people. And in the so-called

“comic” pages (although there is, at rare intervals, a touch of nature which has its appeal) the vulgarity of the presentation is a powerful and constant force working to lower the standard of artistic judgment among our people. Yet humor and art can go hand in hand as is proved by a glance at the pages of *Punch*.

There is no room for art in the newspapers. The reason is a simple one: the people are not interested in art. Were there a demand the papers would supply it.

There is, as yet, little in the average motion picture which tends to raise the standards of artistic appreciation. For an art (or is it merely a business) so new, the advancement, as exemplified in an occasional film, is encouraging: but the rank and file (though motion pictures are seldom, as some insist, rank and vile) have a long road to travel before those who attend them are lifted to a higher plane of artistic understanding. The improvement will not come through films labeled “Educational”; the improvement must be in response to a demand from the people. There is room for art in the movies, but the producers are but dimly aware of the fact.

One would expect of our churches, dealing with man’s spiritual development, a greater appeal to the spirit through beauty of line, form, and color. But how few of our church buildings are architecturally worthy. Many notable exceptions will at once come to mind; but the majority are ungainly, often pretentious, poor in mass and in detail: to describe some of them the

only possible word is "hideous." And the sad part of the matter is that those who worship in them are unconscious of the fact. Furthermore, in these buildings one finds leaded glass windows whose colors would, one imagines, set the teeth of a Fiji Islander on edge: but pleasant people with the highest ethical standards gaze upon them with entire complacency. Save in exceptional cases it seems that, as yet, we cannot look to the churches for guidance in the realm of visual beauty.

Of course, the politician has not learned that "art pays." Here and there a municipality grudgingly allows a group of unthanked enthusiasts to have its way in the matter of civic improvement, but the city fathers are but puzzled by such demands: they seem to have no comprehension of the value of beauty as a civic asset. The ignorance of the average politician on such subjects is summed up in the naïve remark of a mayor of Boston, who declared that he would erect three flag-poles on Copley Square and thus make it more beautiful than the Piazza San Marco of Venice. In speaking of the State Capitol at Harrisburg a resident mentioned the building as "the most beautiful in the world." Evidently, alas, in his world. It is a matter of a lack of knowledge, of comparative standards. The ignorance is understandable, though not excusable. Many cannot travel, but all may learn. But the outlook of the politician seems to be peculiarly circumscribed and in politics one sees no hope for art.

BEAUTY IN BUSINESS PAYS

In the business world, however, there are evidences of a dawning realization of the very large part which beauty may play; what a powerful factor in obtaining more business the ideas of the artist (be he architect, worker in

metals, or painter) may be. • The directorate of a great newspaper recently held a world-wide competition that it might obtain designs for a building which, by its beauty, should impress the imaginations of the people. The Cunard Company has opened at 25 Broadway, New York City, a great hall for the transaction of business which has become a Mecca for lovers of beauty, so impressive is the room and so beautiful its decorations. The engaging of staterooms could be done in a bare room of half the size; but the management evidently realized that in dealing with its clients in a hall where form and color are combined in a superb manner it was achieving the best kind of publicity—that no other form of advertising would pay so well. For here we have an appeal to the spirit through beauty, an appeal which cannot miss its mark.

The Bowery Savings Bank has recently moved to a new building on East Forty-second Street, New York City. Its banking room, to which the often misused term "vast" may be justly applied, is a revelation of what our architects can accomplish when given the opportunity. The beauty of its proportions, the subdued splendor of its decorations give the keenest delight to those with eyes to see and the institution gains an amount of "free advertising" absolutely unobtainable by other methods. Here, as in the Cunard Building, it is a matter of firing the imagination, of arousing the spirit of beauty which sleeps within us all.

Only three notable cases have been mentioned; others might be cited to prove that the world of business is, though slowly, turning for help to the world of art. In the field of advertising evidence is before us on every hand to prove that "art pays." And while many advertisements are crude and blatant, those who have watched the

development of this very modern phase of business cannot but have noted the advancement in the artistic standards of our advertisers.

We do not, of course, expect to look to the business world for direct help in our effort to increase the understanding of the people in matters artistic, but occasionally one feels that material aid is being given; that those in control are realizing that in business there is room for art.

TASTE FOR BEAUTY NOT CULTIVATED

Professional men—lawyers, doctors, engineers—are, one often finds, surprisingly ignorant concerning the simplest questions of artistic expression. We have fallen away from the standards of the eighteenth century, when a knowledge of such matters was a part of the training given a gentleman. Here and there a college is introducing courses in artistic appreciation in order (to quote a college professor) "that the average student may know the difference between Rubens and Rubenstein." Merely a beginning has been made, however. It is almost pathetic to note the joy with which a middle-aged college man sometimes "discovers" the arts. So much pleasure might have been his had he, at an earlier age, been started on the right path; brought up in a world where there was place for art.

The secondary schools are making distinct progress, but school authorities in common with those who direct the destinies of our colleges, have not yet awakened to the desirability, much less the necessity, of broadening the student's horizon through an acquaintance with the most lasting achievements of man and the indices of his cultivation: the masterworks of architecture, of sculpture, of painting and of the articles of daily use raised, by their beauty, to the plane of the arts.

A glance at the magazines displayed

upon our news-stands will quickly prove that there, there is no room for art—need of it, of course, but the need is not felt by the buyers. As always, there are exceptions, but they are lost in the mass of publications which are as a barrier against a true understanding of beauty. And here again, it is a matter of a public demand. Did the people ask for better things these would be forthcoming.

HASTE—NOT TASTE

The case of the book-publishing world is little better. Haste, quantity production, an indifferent public, these are the elements which cause but one book out of a hundred thousand published to be worthy of preservation as an example of the highest possibilities in typography and binding.

When we turn to the unending production of "things," the millions of objects yearly produced in these United States, how many of these are advancing the artistic standards of the nation? The outlook is hopeful, but as yet we see only the dawn of the new day. Comparing the furniture, the textiles, the wall-paper, the glass, chinaware and silver now offered for sale with the wares purchasable in 1894, we must grant an improvement, yet realize how far the average article falls below the standards which might prevail. It would be unreasonable to ask that every object of daily use manufactured be a "museum piece"; but one sees such quantities of things which, with no greater expenditure of material or time, might have been so much better. The people haven't the taste nor the majority of producers the knowledge necessary for higher standards.

INFLUENCE OF "MACHINE-MADE" ON ART

The outlook is, nevertheless, not so gloomy as might be imagined from the

evidence to the contrary here marshalled. Men have practiced the various handicrafts for five thousand years: the steam-driven machine has been doing our work for us for less than two hundred years. We cannot, therefore, wonder that machine-made objects are not all that they might be; rather, be surprised that they are as pleasing as they are. And the advance in the last thirty years has been really great.

These steam-driven machines have much to answer for. The nineteenth century was, through their agency, a century of general artistic debasement. The objection might at once be made that architecture, painting, and sculpture, that taste itself, are not machine-made. True: but the influence of the machine, not merely in the making of objects, but in increasing the "busyness" of mankind (aided by photography and electricity in breaking down the barriers of time and space) gave a new trend to the ideals of our people. Traditional methods of building, of painting, of lighting, of doing almost everything that we do, were lost and for a hundred years we have been guided, if not by false gods, certainly not by gods endowed with taste. Materially, progress has been truly marvelous—taste was lost in the turmoil. That our spiritual development has not kept pace with our material progress was clearly put before us in the words of a speaker who addressed an audience upon the first transmission of speech by wireless from London to Philadelphia. After stressing the wonder of the accomplishment he paused—then made the pertinent observation: "We have the power of transmitting speech across the Atlantic. Have we anything to say which is worthy of being so transmitted?"

The question is a searching one. We can print a million copies of a magazine each week. What have we to print

which is worthy of such multiplication? We can weave ten thousand yards of cloth in a week; have we designs beautiful enough to make such production worth while?

With the machine we can work wonders. Do we rise to greater heights and, from the brains of our designers, produce marvels of beauty which will vie with the marvels of our mechanical means of reproducing them?

It is too much to ask. Art is a thing of slow growth. It cannot be forced. True beauty does not appear merely for the asking. It must be sought with great longing, with deep earnestness and for a long time by many seekers. Then unaccountably, to one of these, beauty is revealed. And, so rare is the phenomenon, that to those few who find this spiritual treasure we give the name genius.

NEED FOR BEAUTY IN LIFE OF MAN

The impatient man asks—if this precious thing is so rarely revealed, why spend so much time in training those who seem to have no spark of genius—why prate of raising the taste of the public; why, in fact, worry about Art at all?

The oak tree produces a thousand acorns from one of which a new tree may grow. We must have a thousand workers in the realm of the arts that one may rise to the plane of greatness. As to why we should foster art—there is but one answer and so obvious a reason that it is hardly worth the stating. Through beauty man's spirit is uplifted; to neglect it is to sink again to the depths from which mankind has risen.

That we judge the civilizations of the past by their artistic achievements is a commonplace of general knowledge. That our own may stand high in the estimation of coming generations we must look to our artistic output and,

in spite of the material distractions of the day, improve it in every possible way.

The impatient man may again object—asking why we should worry about what the future may think of us.

A pertinent question. What is essential is that we should be able to think well of ourselves. And we cannot hold our civilization in high esteem should we be satisfied with our marvelous material development while being indifferent to the spiritual quality of our life.

The development of man's spirit is controlled by various factors—not the least important being Art. Therefore we must see to it that in these hustling times there is a place for true artistic appreciation.

OPPORTUNITY OF DESIGNERS

The city planners, the architects, those who prepare designs for textiles, wallpaper, furniture, silver and the other products in which design plays a part, the illustrators, the painters, the sculptors—these contribute to the daily increase of beauty; each does his share in raising the standard. These producers create for the man with the small purse—the man who cannot afford to buy “museum pieces”—the objects which will enable him to create beauty in his home—the furniture and silver with good, simple lines, the rugs and hangings fine in color. How

important is the mission of these designers. How necessary that they be well trained. How imperative that they realize the great part they play in forming the taste of the nation.

It is to be regretted that many of them seem not to be alive to their opportunity and to their obligation. In so many cases they think, not in terms of national taste, but merely in relation to the whim or fashion of the moment—in terms purely individualistic instead of collective. It will take years of effort before the designers of the nation are brought to a realization of their great mission; but it will, it must, be done.

From the standpoint of material prosperity alone the development of taste is of the utmost importance. Wealth is directly increased by beauty. When the average man is given a choice between a beautiful and a less beautiful object, he will surely take the former. He will spend more for the object with the finer line, the more pleasing color. Since beauty costs no more than ugliness—since it is a matter of training the taste of designer, producer, and purchaser—let us have beauty. And as the public will gladly pay more for beauty, whether it be found in a building, a garden or in dress and house furnishings—the business man with vision will do his utmost to foster art in the community, for he knows that “beauty pays.”

The Effect of Scientific Food Consumption in Increasing Wealth

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THERE are many ways in which "scientific consumption" of food might contribute to the increase or conservation of national wealth. Broadly speaking, most of these ways concern either the health and efficiency of the individual or some form of waste, whether of land, of materials, or of human effort. Unfortunately, while the science of nutrition has made great progress, the practical application of its principles to the problems of the mass nutrition of peoples is still in the formative stage. Hence it does not seem profitable to discuss in this paper the additions to the national wealth that might come if the masses adopted a diet designed to reduce ill health to a minimum and raise individual efficiency to the maximum, thereby adding to the national wealth through increased efficiency of the individuals that constitute the nation. Waste in consumption, on the contrary, is a subject more nearly ripe for discussion. Certain phases of it are therefore presented in this paper, for there are so many kinds of waste that a large volume would scarcely furnish space enough to treat them all.

Of the many forms of waste in food consumption that form has been chosen for analysis in this essay which is the consequence of the consumption of such foods as are produced with waste—whether of capital or of labor. Obviously such consumption is "unscientific." Conversely, consumption of foods produced with the least waste, that is with the minimum of land,

capital, or labor, might be considered "scientific." The use of a dietary consisting predominantly of such food-stuffs might contribute to the national wealth because the labor, the capital, and the land released might be used to create forms of wealth other than food. The amounts of labor, capital, and land that might be released if the world were to change, as it is not likely soon to change, its food habits are truly enormous. It is because the quantities of potential wealth involved are so staggering that this question has been chosen for treatment in this paper, even though the idea is quite utopian, since peoples resist change in food habits with perhaps greater tenacity than any other revolution. Nevertheless discussion of the subject is believed to be worth while in itself, since it leads to a clearer understanding of some of the factors that determine the limits of food production through agriculture upon our earth.¹

If we are to proceed with our subject, we must attempt a grading of foods based on the amount of labor and of land required in their production. For this purpose we need three units: a unit of labor, a unit of land, and a unit of food value. Units of labor and land respectively are simple to choose. For labor we shall take time; for land, area. To be sure, labor differs in productivity for different races, times, and places, while land differs in fertility and in capital value. With these variables, however, we

¹ Food production in the sea will not be considered.

need not concern ourselves, for we will assume in our calculations that we are dealing with the same labor and the same land, the rough average of the United States. To decide upon a unit of food value is a more difficult matter, for in order to do so intelligently we must know the purposes food serves.

FOOD VALUES

In the main food performs two principal functions. It serves as a source of energy for the operation of the human machine and it furnishes the material for growth and for the repair of the wear and tear that the processes of living entail upon the animal machine. It yields both fuel and maintenance to the body. There are, of course, a number of other indispensable functions served by foods, but the quantities of foodstuffs involved are so minute, as compared with the energy and maintenance requirements of the animal machine, that for the purposes of the present discussion they need not be considered.

The standard by which, then, the value of foods must be measured is a double one—their fuel and their maintenance value. The fuel value of a food is simply determined and fairly well established for most foods. The maintenance value is much more difficult to establish and has by no means been determined for all foods. It is dependent upon a number of factors but is in the main a function of the amount and kind of nitrogenous substances present. However, the amount of repair material which the adult animal machine requires daily is very small as compared with the amount of energy demanded. Therefore, in order not to complicate our analysis unduly, we shall in the present paper consider the repair value of foods only incidentally. We shall

concern ourselves in the main with their energy value.

Now all kinds of energy may be converted into heat. Heat is a sort of greatest common divisor for all energy forms. Heat is therefore used by physicists as a convenient common measure for energy; and the unit of heat is the calorie. It is the amount of heat required to raise the temperature of one kilogram of water from 0° Centigrade to 1°. The energy value of such a substance as a food is determined by measuring the amount of heat generated when it is burned. Experiments have shown that, with some quantitatively unimportant exceptions, this value is the same whether the food be burned in a flame or in the body. Experiment has further shown that equal weights of different kinds of foodstuffs generate very different amounts of heat when burned. Fat, for example, generates more than twice as much heat as starch. It is obvious, therefore, that the unit of food value that we should select must not be the unit of weight but the unit of energy, the calorie.

Having selected our units of land, of labor, and of food value, we are ready to attempt a grading of foods based upon the productivity in calories of land and of labor. The food in terms of the number of calories, as well as pounds, produced per acre is set forth in Table I.

Examination of the table shows that ordinary potatoes produce the greatest tonnage per acre, while corn produces by far the greatest food fuel values, the greatest number of calories. If, however, we consider the out-turn not on the basis of yield per acre but on the basis of production per ten hour day of man labor, we obtain quite a different picture. Such computations have been made in Table II.

TABLE I—ANNUAL PRODUCTION OF FOOD AND ENERGY BY VARIOUS CROPS PER ACRE

CROP	YIELD PER ACRE		CALORIES PER POUND	CALORIES PER ACRE
	Bu.	Pounds		
Corn (Maize) .	35	1,960	1,594	3,124,240
Wheat . . .	20	1,200	1,490	1,788,000
Rye . . .	20	1,200	1,506	1,807,200
Oats	35	784	1,600	1,254,400
Irish Potatoes . .	100	6,000	318	1,908,000
Sweet Potatoes	110	5,940	480	2,851,200
Soy Beans	16	960	1,598	1,554,000
Peanuts . .	34	584	2,416	1,265,018

NOTE. This table adapted from Farmers' Bulletin 877, U. S. Dept. of Agriculture: *Human Food from an Acre of Staple Farm Products*, by Morton O. Cooper and W. J. Spillman, Washington, 1917. The yields used in the table are arbitrary. They represent yields commonly obtained by fair agricultural practice upon fair land. They are appreciably greater than the general average of the country. The use of such averages would not change the relation of the crops to one another.

TABLE II—AMOUNT OF MATERIAL AND ENERGY YIELDED BY VARIOUS CROPS PER TEN-HOUR DAY OF MAN LABOR

CROP	LABOR PER ACRE	YIELD PER DAY		TOTAL PROTEIN	TOTAL FAT	TOTAL CARBOHY- DRATES	TOTAL ENERGY
	Days	Bu.	Lbs.	Lbs.	Lbs.	Lbs.	Calories
Corn	4.0	8.7	490	37.0	20.5	323	781,060
Wheat	1.5	13.3	800	111.0	15.3	575	1,185,333
Rye	1.5	13.3	800	54.6	7.3	680	1,204,800
Oats	1.5	23.3	523	84.0	37.8	352	830,268
Irish Potatoes	9.0	11.1	666	12.0	0.7	98	212,000
Sweet Potatoes	13.0	8.5	457	6.4	2.8	100	219,400

NOTE. For crops like wheat and oats, the horse and man labor are nearly equal, while for corn and potatoes more man labor is required. The calculations are based upon the yields and food values used in Table I. The figures for labor requirements are estimates based on average agricultural practice and allow for horse labor.

FACTORS INFLUENCING CROP SELECTIONS

Inspection of the table shows that a day's labor yields by far the greatest food fuel values when employed in the production of wheat and rye and the least in the production of potatoes. In terms of food value, calories, land can be employed most profitably in the production of Indian corn; labor

in the production of wheat or rye. Where land is abundant and labor scarce we should expect such crops as the small grains to predominate. Where land is all occupied and labor relatively abundant, we should expect such crops as corn or potatoes to predominate. In a general way such is the case. Wheat and rye for example characterize frontier agriculture in the temperate zones.

• There are of course many other factors which influence the selection of crops aside from the obvious limitations set by climate and soil. Among the most important of these is the demand of different crops for labor at different seasons. Wheat and rye, since they are not cultivated, require labor only at seeding and harvesting time. Corn and potatoes need not be planted or harvested at the same time as wheat or rye; they require cultivation and give employment to labor at a time when it is not needed for the small grains. Therefore, while the small grains yield the greatest return per day's work, it would not always be in the interest of efficiency to make over our agriculture so as to produce these crops exclusively, for in such a system agricultural labor would be without employment for a great portion of the year. This consideration, as well as the need for crop rotation to maintain fertility, requires at present a mixed agriculture. This condition, need not, however, obtain in future generations. A social organization is conceivable in which agriculture and industry are made to dovetail, labor migrating from the industrial centers to the land and back from the land to the industrial centers seasonally. Under such circumstances fertility might be maintained to a considerable extent by artificial fertilizers.

The foodstuffs considered in Tables I and II are all vegetable, the direct product of the land. Indirect products such as animal foods have not yet been drawn into the discussion. In doing so it must be pointed out that foodstuffs may be divided into two main groups,—primary and secondary. Primary foodstuffs are those which are the direct product of the growth of green plants and can be consumed by man directly. Such

foods are fruits, vegetables, and bread grains. Secondary foods are those which result from the feeding of agricultural products to animals. Such foodstuffs are dairy and meat products and eggs.

The production of secondary foodstuffs by feeding the primary products of the soil may be divided into two types. The first is the feeding of material in itself not suitable for human food, produced upon land not capable of primary food production such as range land, or produced as a by-product of primary food production, for example straw. The second is the feeding of materials suitable for human consumption, for example wheat, or of materials which, while in themselves not fit for human food, have been grown upon land that might have produced primary human foodstuffs, for example alfalfa. Plainly the two types may be of very different degrees of efficiency as measured in terms of land and labor. The first type is efficient in terms of land since rough land is ordinarily useless for anything other than pasturage. It may or may not be efficient in terms of labor depending upon circumstances. As a rule, however, it is. Moreover, it converts into human food otherwise useless by-products such as straw and stover. The second type is, obviously, efficient if in the process of conversion of the primary foodstuff into the secondary one by feeding it to an animal little or nothing is lost.

RELATIVE EFFICIENCY IN CONVERSION OF PRIMARY INTO SECONDARY FOODS

Let us, therefore, consider the efficiency of the conversion of primary into secondary foods. If a primary food, for example wheat, be fed to an animal, say a hog, it is converted into the body substances of the animal and thus

changed into meat or lard. The efficiency of this conversion depends upon a variety of factors. Different animal species are efficient in different degrees. For a given species the efficiency varies with the breed and age of the animal and the time it is slaughtered. Thus the younger the animal, within limits, at the time of slaughter, the more efficient is the conversion. For example the conversion is more efficient in the case of hogs if slaughtered at 150-200 pounds than if allowed to grow to 300 pounds. In the case of beef the efficiency is greater if the animals are slaughtered at 15 or 18 months than if they are allowed to grow into three- or four-year-old steers. For these reasons no general figures can be given for the efficiency of the process.

In general, however, the hog is the most efficient of domesticated animals in the percentage of the energy value of the feed that is recovered in the form of pork and lard. This efficiency will range somewhere between 25 and 40 per cent. The energy which is not recovered is dissipated and goes to maintain the animal and permit it to live and perform its vital processes. In the case of beef the efficiency is undoubtedly much less. Thus, in a three- or four-year-old steer probably not over a few per cent of the energy value of the feed is recovered. However, a great deal of the feed of hogs is suitable for direct utilization by human beings. Hogs are fattened upon bread and fodder grains with often a good deal of skim milk and relatively little pasturage. Even when hogs are pastured on such crops as alfalfa, cow peas, or peanuts, the pastured crop is usually one which has to be planted especially for that purpose upon good land that is capable of producing primary foodstuffs.

Cattle, on the other hand, may be produced upon fodder materials which are entirely unsuitable for human con-

sumption, such as hay, straw, and grasses. These are crops that may be, and to a large extent are, produced on rough land unsuitable for other purposes. Therefore, to the extent that cattle may be produced upon rough pasture and inedible by-products without feeding to them materials that are suitable for use as primary foods, their inefficiency as converters does not result in waste of wealth, for the cattle make use of land and facilities that could not otherwise be used to produce food. However, if cattle are produced, as in stall feeding, upon feeds like grain that might be consumed directly by man, such a practice represents an economic waste, considered from the point of view of this paper.

Dairying is a more efficient process

TABLE III—THE UTILIZATION OF FEED BY VARIOUS ANIMALS IN THE PRODUCTION OF FOOD

Pounds starch equivalent in fodder required to produce 1000 calories in the form of:

2.9	Milk from good cow ¹
3.0	Pig meat ¹
3.3 ²	Chickens ²
4.7	Veal ¹
4.7	Milk from poor cow ¹
5.8	Mutton ¹
7.0	Eggs ¹
7.0	"Baby" beef ¹
9.0	"Steer" beef ¹
15.0 ⁴	Chickens ³

¹ "The Food Supply of the United Kingdom."

A report drawn up by a committee of the Royal Society at the request of the president of the Board of Trade, p. 27, London, 1917.

² Based on unpublished data of the Food Research Laboratory of the Bureau of Chemistry, U. S. Dept. of Agriculture. The experiments were made upon birds weighing 1.7 pounds on an average. They were fed two weeks under the commercial conditions obtaining in the feeding stations of poultry packing establishments. The high efficiency secured upon the distillers' grains-buttermilk diet is not typical of poultry production in general but the result of feeding for a brief period young birds upon a very nutritious diet.

³ Diet, corn, distillers' grains and buttermilk.

⁴ Diet, corn and water.

than beef production. The dairy cow is about as efficient an energy converter as the hog and more efficient than any other domesticated animal in converting nitrogenous vegetable substances of inferior nutritive value into animal protein of superior value. Cows furnish us with milk, with veal, and when they are past their usefulness as dairy animals, with beef.

The relative efficiency of the utilization of feed by different animals is shown in Table III.

FOOD WASTES

This table shows the great variation in the amount of fodder required to yield a unit of food. It also makes clear the pre-eminence of the hog and the dairy cow. Unfortunately, we do not take full advantage of the dairy cow as a feed converter, partly because many of the country's cows are "poor" cows, *i.e.*, inefficient as converters, partly because we waste or utilize inefficiently much of her output, as may be seen by a glance at Table IV.

TABLE IV—THE DISPOSITION OF THE MILK SOLIDS PRODUCED IN THE UNITED STATES IN 1916.¹

SOLIDS IN THE COUNTRY'S MILK PRODUCTION	BILLION LBS. 11.50
Consumed as milk.	4.75
Goes into skim milk.	3.15
Used as butter.	1.60
Used by calves.	0.45
Used as ice cream.	0.45
Used as buttermilk.	0.35
Used as condensed milk.	0.30
Used as cheese.	0.25
Whey.	0.25

¹ The utilization of milk has improved somewhat since 1916 due to the growing production of skim milk powder and the development of the condensed buttermilk industry. Skim milk powder is used principally for human food but in part also for animal feed. Condensed buttermilk is used almost exclusively for animal feed.

Most of the skim milk, the buttermilk, and the whey is fed to animals or wasted. In these three by-products is contained nearly one-third of the material in the country's milk production that is not water. Nearly one-half of this solid matter is nitrogenous food material of the highest quality. It is an enormous quantity of about the same order of magnitude as the sum total of the nitrogenous food material in the country's total annual beef consumption.

If we bear in mind that a pound of starch has a food value equivalent to about 1,800 calories, then it is manifest from Table III that the production of secondary from primary foodstuffs fit for human consumption is a wasteful and inefficient procedure. The table shows that it takes about 5,400 calories to produce 1,000 calories in the form of milk or pig meat. The magnitude of the wastes for the country as a whole involved in the conversions treated in Table III may be visualized by examining the disposition of the principle feed crops of the country. This is given in Table V. It shows that but a minor portion of the corn, the oat, and the barley crop is used as human food. Most of these crops are fed to produce secondary foods or to maintain draught animals. If we consider that the food value of these three grains pound for pound is somewhat higher than that of starch and if we also bear in mind the data presented in Table III, we must conclude that the waste of food values in the case of these crops alone is enormous. That portion of these crops used to produce secondary foods is recovered in part in the secondary foods—probably the recovery is less than 25 per cent of the food fuel values.

That portion of the crop fed to draught animals is lost completely save in so far as the fertilizer produced consists in crop production. For oats it is

TABLE V.—ESTIMATED DISPOSITION OF FEED CROPS ON FARMS OF THE UNITED STATES, BASED ON THE AVERAGE OF PRODUCTION AND FEEDING FOR THE FIVE YEAR PERIOD 1909-1914.

OBJECT	CORN		OATS		BARLEY	
	Per Cent	Bushels, Millions	Per Cent	Bushels, Millions	Per Cent	Bushels, Millions
Horses and mules.....	27.0	781	46.4	525	14.8	27
Swine.....	26.8	726	1.8	20	9.4	17
Milch cows .	8.6	233	5.0	57	4.4	8
Other cattle .	9.4	254	1.8	20	1.1	2
Sheep	2.2	60	1.8	20	0.6	1
Poultry .	8.6	97	2.2	25	2.2	4
Human beings...	3.4	92	0.9	10	0.7	2
Seed	0.8	22	7.6	86	7.1	13
Other or doubtful...	3.8	103	4.5	51	6.7	12
Total on farms	85.6	2,318	72.0	814	47.0	86
Not used on farms .	14.4	390	28.0	317	53.0	96

NOTE. Adapted from Farmers' Bulletin 620, U. S. Dept. of Agriculture.

probably more than half the crop since much of the oats not used on farms is fed to horses in cities. For corn it is more than one quarter of the crop. For barley a large portion was used as food in beer, a use that is now much reduced. These wastes, the feeding of draught animals, might be avoided in part by the use of machinery.

Before drawing inferences from the thoughts above developed, two qualifications need to be made in regard to the relative efficiency with which primary and secondary foodstuffs are produced. In the conversion of primary foodstuffs into secondary ones much fertilizer is produced as a by-product. A material reduction in the numbers of domesticated animals would accelerate the depletion of the fertility of the soil. Much artificial fertilizer would have to be used and this again could be produced only by the employment of labor and material resources. These need to be set off against the losses from the conversion of primary into secondary foods. Such is the first necessary qualification.

The second is that some primary as

well as some secondary foods are essentially by-products. Cottonseed oil is a primary food produced incidentally as a by-product of cotton growing. Mutton, to a very large extent, is a by-product of wool production. Some of our beef and most of our veal might similarly be regarded as a by-product of milk production. It is obvious that the criteria of efficiency which we have been using are not applicable to such by-products as cottonseed oil or mutton.

IN CONCLUSION

It is evident, then, that in terms of labor and land the production of primary foodstuffs, with perhaps the exception of the production of beef and mutton upon the range and rough pastures or upon inedible by-products such as bran and straw, is more efficient than the production of secondary foodstuffs.²

² Cf. Armsby, H. P. "The Cost of Roast Pig." *Science*, August 17, 1917, p. 161.

"Germany's Food: Can it last? Germany's Food and England's Plan to Starve Her Out." A study by German experts edited by Prof. Paul Eltzbacher of Berlin. English edition edited by S. Russell Wells. London, 1915.

- It follows that a national dietary which consisted entirely of primary foodstuffs, that is to say, a wholly vegetable diet, would be one that could be produced with the minimum of labor and the minimum of land. If it consisted exclusively of the primary foods that can be produced most efficiently, for example wheat and rye, it would in regard to labor and land achieve the acme of efficiency. Of course such a diet is impossible. No one could live upon it for any long period. Indeed, the cereals are far from perfect and complete foods. A diet consisting of such cereals as rye and wheat, supplemented by fresh fruits and green vegetables, would be a diet superior to one of bread grains alone, but it, too, would be quite inadequate.

Apparently, for physiological reasons which it is not necessary to discuss in a paper of this kind, an adequate diet must contain a certain amount of animal products. A nation, then, might exist upon a diet on which it derived the greatest part of its energy from such bread grains as wheat and rye and a considerable part of its maintenance requirements from such animal foodstuffs as milk. In addition the diet would have to contain a certain amount of

green vegetables or fruits. It would also include the meat of veal and old cows, the eggs and meat of self-supporting foraging hens, the product of the sea and inland waters, the mutton which is a by-product of wool growing, and the meat of animals like cattle and goats produced upon the ranges and other rough land. Obviously, such a diet can be produced with the minimum of labor and land. There is nothing on record to indicate that it is not wholesome. Its general adoption would release much labor and much land. If we assume that both would be applied to the production of wealth, it is clear that the resulting national gain in wealth might be very great indeed. In any event the result might well be that the earth would support a far greater population than is commonly believed possible.

However, as stated at the outset, the ideas presented herein take no cognizance of present psychological factors. Perhaps they represent what will prove to be a long-time trend. Certain it is that at the present time no such people as that of the United States could, under conditions now conceivable, be brought to accept such a diet or even one closely approaching it.

Creative Wealth Factors in Modern Scientific Clothes Consumption

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IT is a well-known fact that the clothing industry, which ranks twelfth in the United States and whose value in dollars and cents is considerably above \$900,000,000, is probably less understood in its very many phases than fifty other industries which may follow in order of precedence. This is primarily due to a lack of the modern publicity and propaganda methods employed to bring any particular industry before the minds of our citizens.

It may also be due to the fact that an article which is so commonly accepted as a part and parcel of our everyday life is apt to lose the glamour and the romance which, in the telling of it, appeals to the greatest number of readers. For instance, everyone is familiar with blast furnaces, the coke ovens, the tremendous machinery and the various angles to our wonderful steel business or with the alluring details of the making of pleasure automobiles; whereas there is not one man in a thousand who can tell you anything regarding the manufacture and distribution of the suit of clothes he is wearing daily.

There is no disputing the fact that the sources of wealth are a continuous chain, and that the element of respect inspired by well-dressed men contributes greatly towards increasing the wealth of the entire country to a very large extent; therefore, much can be accomplished by educating or at least enlightening the public concerning the details of this industry.

Briefly, let us consider the past

history of the men's ready-to-wear clothing industry, and go back, say fifty or sixty years, when the clothes-buying public were divided into two classes—those who could afford to have their clothes custom tailored and those who could not. The latter class was served by a product that claimed no distinction, individuality or quality in either the fabric or the tailoring, and bore no relation to the present high standards of modern ready-to-wear clothing. In fact, the present industry could trace its ancestry to the finer grade of custom tailoring rather than the cheap "hand-me-downs" of that period.

MEN'S CLOTHING IN THE MAKING

Let us sketch, therefore, the development in the present modern clothing factory of a product whose standards are considered so high by those who know and which, however, are not appreciated by the great majority.

To begin with, the foundation of all good clothing is the fabric, which in all cases is required to be all wool, carefully tested for tensile strength, for fast color, for its wearing qualifications and other standards which must be met strictly before the cloth can be passed through for the further processes. The same cloth is then subjected to a stringent shrinking, either by London Cold Water, or by steam to overcome the natural abuse due to shrinking after the fabrics have been made into suits and overcoats.

The next step in this well-organized chain is the perfection of cutting and

•trimming methods It would be wise to record that the cutting of a modern well-made clothing output bears no relation whatsoever to the careless plan of chopping out in vast quantities a number of garments, as practised years ago. A large part of men's clothing is cut by hand with the scissors and it is only in the cheaper fabrics, such as summer goods or in the very heavy staple overcoatings that use is made of the electric cutting machine. Even this latter is a great improvement over the old-fashioned saw of former days, and the result is that the cut material passes on to the shops with the details much more carefully worked out and permitting of a finer finish by the tailoring departments.

Too much cannot be said regarding the present-day clothing shop, whether it be in the manufacturing of coats, pants, vests or any other part of the product. A shop is organized very similar to an army unit, with its head foreman or quality man, assisted by a sub-foreman. Each particular operation is performed by a specialist whose daily work is confined to this one thing, and who, because of this, perfects himself in his work. How different from the custom tailor who has to make the entire garment himself, bringing forth that old adage, "Jack of all trades is master of none." The work in these shops is subjected to the most minute scrutiny, and the product carefully examined before it appears in the stock shelves of any company.

The question, naturally, is asked how these things are possible, when the moderate price of the average ready-made garment is compared with that of a custom-tailored one, and you will not fail to overlook that, not withstanding the fact that the ready-made clothing consumer receives the benefit of a product designed by a master

executive, who was far better trained than the various custom tailors whose vision could never be so broad, nevertheless, he also benefits by the apparent economy of enormous purchases of woollens and trimmings together with mass production along modern and efficient lines.

Just recall the recent happening, wherein that noted sportsman, the Prince of Wales, makes popular a certain type of suit and practically, in three months, this garment is within the reach of the entire clothes-buying public of this country.

How is this made possible? Here is where a perfected distribution plays its part. Any number of our leading manufacturers prepare a line of models carefully designed and manufactured under the supervision of a master designer. Hundreds of wide-awake, energetic representatives leave for every state and city in this country about the same time twice a year, to bring home to the doors of the buying public the latest creations in style of garments and fabrics.

Through this method, hundreds and thousands of suits from one fabric and over one model are brought together and collated in the various fabrics. They are manufactured in large quantities, but there is no fear of uniformity or sameness, because these garments are distributed throughout the country. Probably the wearer of one garment will never see the identical suit or overcoat in his own community, so he has all the advantages of individuality of design and fabric, yet, withal, at a moderate price.

CLOTHES AND BUSINESS SUCCESS

A rather serious development has affected the prosperity of the men's clothing industry in the past few years, due primarily to the ever-increasing purchase of automobiles, as well as

hand in every business undertaking, the small and the large alike.

In the clothing field advertising has been drawn down to more scientific lines. Instead of bulk advertising of the past, we see more and more intelligent effort—a sharper distinction in its objectives—less bombast, and a fine restraint and dignity in its application. The clothing manufacturer no longer confines himself to screaming broadsides directed at the masses, but divides his appeals to reach special classes, and instead of devoting all of his advertising appropriation to consumer announcements, now uses large funds to instill in the retailers' mind a proper appreciation for the benefits which will accrue from the regular use of proper local advertising. Thus, advertising in its modern application has become an educational force in the same measure that it is a business-building force. The progressive clothing manufacturer

not only employs the many approved avenues of advertising to promote and create a consumer-demand for his product, but in these same channels he instructs the retail merchant in the most resultful methods of advertising work—to the end that the merchant can most readily gain the good-will of his community—foster a growing interest in his store and the manufacturer's product—and in this way stimulate an ever-growing circle of trade.

The chain is now complete, and the product of an efficiently organized industry is making itself felt in the economic life of this country. American business men, stylishly dressed, are better prepared than ever before to contribute their very large share to the prosperity of this ever-growing country, and with a deeper understanding of its problems by the public, this industry bids fair to improve its position and arise to the very top in American business.

Wealth-Contributing Factors in the Building of Modern Homes

By BRENTON G. WALLACE
WALLACE & WARNER, ARCHITECTS

PROTECTION from the elements constitutes one of the most fundamental necessities in the life of man. Passing from the period of bare necessity to the modern electrically equipped home represents man's capacity to co-operate with the laws of nature in establishing what to the wealthy of the Middle Ages would be called an ideal home. Along with home development has gone the increased wealth of our country.

It is only when a man actually starts to build a house that he fully appreciates the composite interdependence of modern industry. The materials raw and already manufactured consisting of lumber, nails, hardware, glass, stones, cement, tools, and roofing are neither a house nor a home. The transitional stages are from raw and manufactured products into a constructed house and its final conversion into a home. Multitudes of workmen, and varied industries throughout the country are reciprocally dependent for a livelihood upon this most elementally constructive instinct of man.

It is quite significant that the word home is used in preference to house. The word home implies not alone shelter but a place wherein the parental and sacred obligations of individuals to each other are given an environmental setting. It is a place which affords a setting for the different instincts which man is capable of expressing. The social instinct, the deeper instinct of constructive workmanship combined with the deeper emotions pertaining to beauty, pride, and self-realization are

among the forces at work ultimately to establish a home. So vital is this thought of the far-reaching consequences of home life on the development of the individual that any city is exceedingly proud when it can be characterized as a city of homes.

MAKE-UP OF IDEAL HOME

There are four wealth-creative factors in the modern construction of a home in accord with the deeper impulses of our nature to possess an environmental setting which permits the occupants to live healthfully and happily. First, the selection of the right setting or location.

A house of itself may meet all the demands of utility, but, unless it is located in surroundings capable of expressing beauty or capable of permitting the workmanship instinct of man to give vent to itself, there is ultimate loss of self-respect. The surroundings of the house have a decided influence upon its inhabitants.

Second, the house itself should be constructed in accord with the laws of proportion, balance, and symmetry. Space should be so utilized as to afford convenience, privacy, freedom of movement, and the placement of furniture under conditions which might aptly be characterized in the phrase—"aptly livable."

Third, a house should contain utilities in keeping with labor-saving devices. This does not necessarily mean reducing the size of a home. Rather should the ideal always be to reserve space for freedom of movement.

Modern ideas as frigidaire, dishwashers, books, radio sets, pictures, lighting, automobiles, and heating systems, should be thought of and discussed in terms of not only the immediate family but the possible future growth of the family. A modern home then rightly becomes an incentive worthy of self-denial as well as willingness to assume responsibilities. In this consists legitimate new wealth.

Moreover, we are coming to see that values of real estate tend to be stabilized accordingly as the above-named conditions enter into the selection and construction of a modern home.

Fourth, a property should be purchased under conditions which permit financing in keeping with the legitimate hopes and aspirations of the purchaser over a long period of time. A happy and contented man surrounded by a family established in a home worthy the name is likely to be a better worker, a believer in thrift, and a better citizen. A home appeals because it has been constructed in the right location with æsthetic values. Such a home gives dignity to life and establishes noble incentives in rearing a family.

Certainly the four factors named are wealth-creative in their impulses. Advertising and salesmanship become worthy of their place in our present scheme of things as they demonstrate their persuasive force in the establishment of concepts pertaining to the art of living, which is inseparable from our dawning consciousness of all that is implied in the phrase—a modern home.

LACK OF BEAUTY ELEMENT

The American people have, however, yet to become educated to better and more artistic houses. In this education consists the possibility of normal increased wealth. Other countries realized the value of this fact years ago, for all through England one sees whole

communities of lovely little houses, laid out artistically and planted beautifully with hedges, evergreens, and wonderful old trees. Of course, the planting was very young when first put in, but that was considered as necessary as other phases of the building. Other countries also have realized the value of a master mind in building, and have included the architect when the first thought of building was considered. A well-designed and beautiful house grows in beauty as it ages, while a so-called "carpenter's house" becomes more unsightly all the time. It pays to employ an architect, as every inch of space is utilized, whereas in a self-planned house space may be lost in not knowing how to arrange the rooms to the best advantage. Also in the proper use of materials to get the best effect, does an architect prove most valuable.

In first planning a house, one should consider carefully his lot and location. It should be on high ground, preferably with shade trees. It should be near good transportation lines to make it readily accessible, and should be located near stores, churches, etc. The price may be a little higher than more remote ground, but it is a good investment, for the value will increase as the surrounding ground is built up. Every house should have its own plot of ground rather than being in a row, for the additional ground affords not only more light and air, but also gives the family more freedom and privacy, additional ground for gardening, as well as giving the children a space for playgrounds.

DON'T RENT—BUILD AND OWN

So few people know the method of financing that is used today; if they did, fewer would rent, because rent money is nothing gained and all lost. A family takes no interest in a rented

house and little in a community, for they do not feel so permanently located. The procedure of building a house is this:

The family discuss the type and size they want. Then they convey their ideas to an architect, who tells them approximately what the cost will be. This is usually very accurate, for it is figured on the cubage basis, which is the actual experience of the cost of building other houses. Then after the decision is made to go ahead, a contract is made up by the architect giving the specifications of the house, cost, etc., and this is signed by the owner. This contract includes everything, so that when the house is finished there are not a lot of unlooked-for extras so many people expect. When the plans are drawn and the house is started, a small payment is made—usually about ten per cent of the value. Then the bank takes a first mortgage of about one-half the valuation of the house; a second mortgage is placed in the building and loan association of about one-half the first mortgage, which makes a very reasonable carrying charge, which is a great deal less than paying rent. The second mortgage is a reducing one, so that in a certain number of years it pays itself off. This is an excellent way of saving, as one is forced to keep it up in small amounts.

In the modern houses so many practical appliances are installed for saving labor that the housekeepers and mothers of today have more freedom than formerly. The automatic heat that is installed by means of hot water heated by gas or oil is a marvelous convenience, as well as a health producer, for an even temperature makes colds, etc., avoidable. The automatic gas method of heating water is also a wonderful convenience. Everyone knows the advantages of

electricity in modern homes for use in lighting, cooking, washing, and cleaning.

In building a home all things are more attainable than in a rented or old-fashioned house, for in building one can express one's individuality according to his personal wants.

The aspect on society in owning their home is to make them more independent, more self-respecting, and more ambitious, for as a family increases its standards, its friends change and they become more educated, and this creates a desire for better things. When a community is made up of attractively laid-out and artistically designed houses each individually owned, tremendous value is added not only on account of the houses themselves, but because the community is bound to grow for the very reason that it is beautiful and therefore popular. Consequently, every store, industry, and trade that is normally supported by a residential neighborhood continues to thrive and prosper.

PROPER CIVIC ATTITUDE

The problem of modern homes is not merely individual in its solution: it is also a question of municipal guidance in determining the fitness, style, and quality of a house to be built. One of the evils in many houses constructed without counsel or advice is the rampant disregard for any other idea than that of a cheap house. This is the day where expert advice means not additional expense, but saving in relation to the future.

A well-known suburban town at one time took a pride in compelling houses to live up to certain stipulated building conditions. There is considerable property on the outskirts of this town, but no distance is longer than a six- or eight-minute walk to the station. The town council is more solicitous regarding present street expenditures

than it is promotive with respect to future home developments. It has withstood pressure to put in water and sewerage. As a result, what might otherwise have developed into a beautiful residential district with charm and distinction is now a mixture of small and undignified houses of cheap construction. As a consequence many fine old properties fringing on this new development are decreasing in value.

Had every small town or city an engineer and architect, a banker and the mayor as members of a committee to think in terms of the maximum beautiful home or even the minimum beautiful home, such a condition as above indicated could not occur. Garages would not be built in places destructive of well-ordered communities, nor would stores be placed in any other quarter than an analysis of the particular community showed.

It is business efficiency for any town or city to think of a budget and greater efficiency. But it is not wisdom to neglect the advice of experts in their efforts to establish future values which pertain not only to the individual but

also to the more general good. It is at this point that the modern banker has his contribution to make. It is his ability to co-operate with those interests which establish values over a long period of time that should constitute his responsibility to any community. The past, the present, and the future should in most instances be a blending so as not to destroy unity of growth in relation to properly established values in any community.

From an individual point of view that community is wealth-creative whose standard of home living means willingness of the individual to think in terms of greater responsibility because his home is a pleasure and delight.

Advertising will undoubtedly do much in the future to sell not particular materials for construction so much as to force the individual to consult experts for advice. Salesmanship will consist in visualizing the home to the prospect in terms of an emotional appeal pertaining to a high standard of living rather than mere price competitive methods.

New Wealth, New Standards of Living and Changed Family Budgets

By MRS. CHRISTINE FREDERICK

Founder, Applecroft Home Experiment Station, Greenlawn, Long Island; Author, *Household Engineering*, *The New Housekeeping*, etc.

HAVE we really grasped the full significance of the present and potential social changes inherent in our new wealth and consumption standards?

Most of us are repelled by statistics, but they are as necessary as yardsticks or measuring spoons, and we will never know the extent of our country's metamorphosis in the past ten years until we try to digest at least the salient facts. The America of 1913 has been altered astonishingly, and the changes which have come over us were more swiftly achieved than any of equal importance at any time in our history.

We will linger for a few minutes upon the great basic figures which are the foundation stones of the new structure, and see how far they have been moved out of place by the economic upheaval of the past decade. First, however, let us set even these figures in a century-old perspective. Take the totals of our wealth: How much new wealth did the United States develop in the century from 1800 to 1900? The reply is 88 billion dollars. If we shall now ask, how much new wealth did we create between 1910 to 1920, we shall fall upon the astounding truth that we added 135 billions—over half as much again in ten years as in an entire century of our history! We sold more goods to the world (39 billions contrasted with 35) in this decade than in the entire 19th century; and we mined a billion tons more coal, smelted twice as much copper, made $3\frac{1}{2}$ times as

much steel, and spent $1\frac{1}{2}$ billion dollars more upon our schools. We match a decade against a century, and the decade wins!

According to Dr. W. I. King,¹ our national income in 1850 was about $2\frac{1}{4}$ billions, from which small sum it rose by 1900 to 18 billions, and by 1910 to 30 billions, and by 1923 had reached 66 billions. What stupendous contrasts! Just before prohibition went into effect, we were spending almost as much for intoxicating drink as the entire nation earned in 1850! And today we are spending for meat alone almost as much as the entire nation earned in 1850! More remarkable still, we spent over 5 billions for automobiles and supplies in 1923, which is more than *twice* the total income of the nation in 1850! True, our population was 23 millions then as against 105 millions in 1920, but this merely quarters our contrasts, leaving them still striking enough.

For the sake of greater sense of familiarity in dealing with figures, let us assume that the entire nation is a family, and view its income and outgo from the angle of family spending.

WHERE MOST OF OUR MONEY GOES

Our income for 1924, it is generally agreed, will be approximately 66 billions. We have had no "raise" since 1919, for this income is the same figure as for 1919 (which we considered a high peak)! Figured out on a daily basis it

¹ *The Wealth and Income of the People of the U. S.*

means that our national "daily wage," if we may so call it, is 180 million dollars per day. In 1910 the nation's daily income was less than half this sum—only about 85 millions; so you see that the national family finances have doubled in 14 years.

Now, as we are not particularly interested in that part of our national family's business which is purely industrial, we may inquire more closely about our *retail* expenditures. They represent true family outlay, and give the same vivid picture of the condition of the national family budget, as does the amount of the grocer's and butcher's bill in an individual family. According to Dr. Paul H. Nystrom, an authority on retail matters,² the retail volume of trade in the United States amounts at present to approximately 35 billion dollars annually—somewhat more than half our total income. Now how much does our big national family spend in the various kinds of retail stores? Dr. Nystrom figures it as follows:

In food stores	15.5 billion dollars
In clothing stores . . .	7.7 " "
In tobacco shops . . .	1.7 " "
In auto stores	3.5 " "
In candy and soft drink stores	1.5 " "
In furniture and home furnishings stores . .	1.9 " "
In jewelry and music shops	1.0 " "
In miscellaneous shops	3.0 " "

Meat, poultry and fish	33%	of average family food bill
Dairy products, milk, cheese, eggs, etc.	17%	" " " " "
Flour and bread	14%	" " " " "
Vegetables	6%	" " " " "
Fresh fruits	4%	" " " " "
All others	26%	" " " " "

What an opportunity to peek into the private family affairs of Mr. and Mrs. Uncle Sam! We see how Uncle Sam and his lusty brood "eat him out of house and home"; he spends 27 per cent of his entire income on food! In fact, he and his family eat about as much in a year as they spend on clothing, automobiles, tobacco, candy, soft drinks, and home furnishings combined! Food is 44 per cent of Uncle Sam's total expenditure at retail stores.

There are no comparative figures available which will permit us to make authentic comparisons with past years, but it is certain that the change has been extensive, because the number of food purveyors and their volume of business has so greatly increased. In 1909 the total dollar value of food produced, according to the census, was approximately 4 billion dollars; by 1911 it had reached nearly 12½ billion (much being exported), and in 1921 it was almost 8 billions; about twice what was a decade before. This represents, of course, only *manufactured* foods. It is difficult to break up accurately our national family food bill into parts; but if a survey made by Dartnell³ is reliable, we have a division as shown below.

The outstanding fact is the very much larger place in the family budget which is occupied today by food. Ten years ago, in lectures on family budgeting I and many other home economic authorities considered that 20 per cent of the family income for food was as much as good nourishment and good

² Dr. Paul H. Nystrom, head of Retail Research Assn.; figures from address before New York Sales Manager's Club, May 9, 1924.

³ Market survey made by Dartnell Corporation; published in *Salesmanagement Magazine* October, 1920.

• economics demanded. It would appear from our figures that, whatever may be a sound or frugal ideal, the American family spends 27 per cent of total income on food; and since this figure is arrived at by taking national income as a whole, I am inclined to believe that the actual percentage of the average family spent for food is about 35 per cent to 40 per cent.

How does America's high ratio of food consumption compare with other countries? According to Dr. Alonzo E. Taylor, an international food expert,⁴ America and traditionally well-fed Germany were on a par in pre-war times. Each nation consumed approximately 3,650 calories per capita per day, whereas the United Kingdom consumed 2,860 and Italy 2,560. The per capita for the United States, in my opinion, is today about 3,800 or 3,900, although it is true, as Dr. Taylor says, that increased income tends toward more varied diet rather than increase in calories per capita. But still there is an increase, since a generous table always superinduces a measure of overeating. We see the reflex of this in the widespread concern of the more fastidious American men and women with overweight. Dr. Taylor himself estimated that 10 per cent of our population consumed more than 4,000 calories, without the hard work which justifies such an intake. I believe this estimate low. The working classes are notably heavy eaters. On the New York East Side, four meals a day are the rule: while among factory and farm populations, generally, the intake of food of high calorific value is very heavy. The food ratio of expenditure is often 40 per cent to 45 per cent of the total income among working classes, even with the high wages received. The

steak-eaters and the despisers of vegetables, salads, and cheaper cuts of meat are principally well-paid mechanics, in my observation.

LURING THE DOLLAR FROM THE KITCHEN

Consideration must also be given to the rapidly increasing amount of food eaten outside the home, in restaurants, at soda fountains, etc. There are today about 125,000 hotels and eating places—an increase of at least 40 per cent in 10 or 15 years. The habit of eating a fourth meal, a supper, grows with increased prosperity. So serious, indeed, did the new family habit of eating out at cafeterias and restaurants become, in a large western city, that the local gas company asked me a few years ago to develop a lively home cooking campaign to induce women to go back to their kitchens to prepare food!

The soda fountain has emerged as an eating place, and soft drinks take rank with candy in the revised eating habits of the American family. The rapid advance in consumption of sugar is an American romance. Back in the days before the Civil War, the consumption of sugar per person was scarcely a few dozen pounds per year; today it is close to 100 pounds per person; rising from 79 pounds in 1910.

The 85,000 confectionery stores of the country sell 18 pounds of candy per person to the people of the United States—a rise of 300 per cent in a few decades. Candy and soft sweet drinks comprise about 6 per cent of our food bill.

Strangely enough, coffee and tea are a lesser part of our family food budget than formerly.

If we include candy and sweet drinks into the family food bill, we have a total of 17 billion dollars, or almost exactly one half of the country's total

⁴ Article by Alonzo Ethelbert Taylor on "Consumption, Merchandising, and Advertising of Foods," *Harvard Business Review*, April, 1924.

retail expenditure, or approximately $33\frac{1}{3}$ per cent of the total family budget. Our expenditures *for what we put into our mouths*, including tobacco, are today more than our expenditures for all else that we buy in retail stores.

OUR CONTRADICTORY AMERICAN

I have always been fascinated with the relativities of consumption in the American family. The statistics make such startling and educative contrasts! Per capita statistics open into view humanity's throbbing idiosyncrasies when they point out such antipodal contrasts as that we spend \$2.58 on diamonds per person and \$1.10 on books; \$4.15 worth of near beer and only 22 cents for dentifrices. Only one in ten people in the United States brush their teeth, but we consume enough tobacco per year to pay off the interest on the entire public debt!

We spend only 6 cents per capita annually for ink (the guesses of editors to the contrary!) and \$1.30 for pickles. We spend 52 cents for professional and scientific instruments and \$11.00 for advertising. We spend 67 cents for condiments and only 57 cents for typewriters; \$27.00 for joy riding, pleasure resorts and races, and only \$1.29 for religious work. We spend 51 cents for firearms and shells and 18 cents for fountain pens and steel pens. We spend \$28.00 for luxurious services and \$2.20 for pianos, organs, and phonographs. We spend \$5.00 for jewelry; 5 cents for artists' materials and 15 cents for artists' finished work of various kinds. We spend \$3.00 for ice cream and 8 cents for professors' salaries; we spend \$45.00 for luxurious foods and \$10.00 on public schools. We spend \$9.00 for perfumery and cosmetics and 30 cents on mirrors.

We spend \$3.75 on toilet soaps and 90 cents on eggs. We spend 65 cents on coffins and 11 cents on health serv-

ice. We spend 10 cents on regalia, badges, and emblems, and 2 cents for engravers' materials. We spend \$2.10 on patent medicines and 32 cents for watches, 45 cents for toys and \$3.20 for cakes and confections. We spend \$8.15 for theater admissions and club dues and \$1.85 for shirts. We spend 1 cent on theatrical scenery and 25 cents on sporting goods. We spend \$21.00 on automobiles and parts, and \$55.00 on men's clothing. We spend \$11.00 for candy and \$41.00 for meats. We spend, finally, \$30.73 for government expenses.⁵

It will be pleasing to the vegetarians to note that we are eating less meat per capita. In 1900 we were eating 79.2 pounds of beef; in 1921 we had reached a low water mark of 57.8 pounds, only to indulge in our obsession for beef-steaks a little more freely as greater prosperity arrived in 1922—61.4 pounds. Instead of the 10 pounds of veal we ate in 1900, we now eat 7.3 pounds; instead of 84.6 pounds of pork and pork products, we now eat 76 pounds. Of mutton and lamb we have dropped from 7.7 pounds in 1900 to 5 pounds in 1922. Our total per capita meat consumption was 181.5 pounds in 1900, and in 1922 only 149.7 pounds. We got it down in 1917 to 132 pounds. Farmers and packers are endeavoring to bring it back to 179 pounds.

ARTIFICIAL STIMULATIONS TO CONSUMPTION

There are, in fact, many and powerful commercial forces at work with the modern tools of publicity and selling to increase the per capita consumption of foods which have been neglected for other articles. The flour millers are trying, with an "eat more bread" propaganda, to raise per capita con-

⁵ Per capita statistics quoted here are compiled by the Business Bourse, International, New York.

sumption from 200 to 220 pounds per year. We eat only three-fourths of a loaf of bread per day per person today. Milkmen are trying to bring up per capita milk consumption to one quart per capita per day—it is scarcely two-thirds that now. The butter makers want to bring up per capita butter consumption to Australia's high level of 10 pounds above our own. Cheese makers want to raise our cheese consumption by 22 pounds per capita, to equal Switzerland's. All of these efforts are indicative of the American family's desertion of old and cheap forms of nutriment for more attractive and varied new foods. The tremendous impetus given to fruits, vegetables, nuts, apples, raisins, and prunes by grower's co-operative marketing associations is developing a dietary change; while refrigeration cars and ships are bringing to America quantities of other foods, all of which are altering standards of consumption.

These artificial stimulations to consumption are not confined to food fields. Many articles once desired have been neglected. Cotton goods have made way for cheap silks; the young lady of whatever social station wearing cotton hosiery is today a rarity! Enamelware for the kitchen became overshadowed by aluminum, in turn, as tinware had been displaced by enamelware, until enamelware makers bestirred themselves. Suspenders were almost displaced by belts, carpets by rugs, lace by cretonnes, washtubs by washing machines, yellow laundry soap by soap chips. Always the trend is toward something better, but also more expensive; always a lift to the sum total of the family budget.

Comparisons between food, clothing, automobile, and other divisions of the family budget are striking. The ratio of expenditure for clothing has been declining. If Dr. Nystrom's figures

are correct, we spend only about \$75.00 per person per year on clothing. On a family basis, this is about \$350.00 per family per year (using the census figure of 4.6 persons to a family). This is a lower percentage of the present-day family budget than clothing has been wont to occupy in other days, and is a significant social change. How is it explained?

We are now arrived at a point in this nation-wide saturation of the family budget with new wants, when some old wants are sacrificed, even if there is no question of the price involved. The National Association of Retail Clothiers asserts that the average man no longer cares much about clothing, but does about an automobile. Iowa, according to this Association, leads in number of automobiles, but also in careless appearance! In a New York State town, a clothing store made its annual sales drive, selling only 17 of the usual 150 suits sold; whereas across the street in the same interval 25 cars were sold! The shoe manufacturer's plaint is the same. People don't walk much anymore, thanks to the automobile, and their shoes last too long! They are not so fussy about their footwear,—at least, women are not, from a quality point of view, as they seem to prefer fancy novelties made of cheaper materials.

Women certainly do not make more of their own or their children's clothes than formerly; but they buy cheaply ready-made garments cut to standardized patterns; simple dresses, with not much underneath! The frills, furbelows, petticoats, and laces of older days have disappeared; women dress far more simply and sensibly today, and at lower cost in ratio to income, than before. They have turned more of their expenditures to toilet articles. In 1923-24 nearly fifty new foreign perfume makers opened offices in America.

RADICAL SOCIAL CHANGES

We thus see at work the social changes due to new types of merchandise, new wealth. Time was when well-to-do farmers' sons spent a lot of money on fancy watches, guns, clothes; but it is automobiles today. A certain level of workmen even in recent war years bought silk shirts—until his income and surplus reached the Ford car level! The farm woman once wore little else but gingham and black alpaca. She buys copies of Fifth Avenue models today, and her daughter, whose face was innocent of aught but freckles, now possesses the standard female laboratory of toilet articles.

The 1924 family budget has in it a far greater *variety* than it ever before contained. The social workers of a generation ago made up budgets suitable for wage earners, and they did not—nor could, indeed—provide for very wide variety or for very high percentage for recreation, education, clothes, savings or for rent. Today there are great numbers of wage earners whose recreation percentage is far above the tiny 5 per cent allotted them years ago; indeed, above the 10 per cent which is standard general home-budgeting principles.

Variety is gaining fast in the food budget, and meat is looming less large in it.

There is a growing scarcity of meat, especially the choice cuts, which are all the average person seems to care for. There is also the dietary reason for reducing meat diet, for an increasingly urban, sedentary population should not eat so much meat. Meat has in the past been by far the largest food item on the American menu. We have been in the habit of eating a good deal over two billion dollars' worth of meat of all kinds (not including poultry and fish); and intelligent hopes are for no less than

a reduction by one half of the per capita consumption. Meat is now one quarter of our entire food bill. It is a fact astonishing to contemplate that we have spent *more for meat than we have spent for clothing* of all kinds. When it is realized that America is still the best dressed nation in the world, the true proportions of this stupendous fact will be noted.

We spend about seven times as much for meat as we spend for bread; and about *five times* as much for our meat as we spend for our public schools; and over ten times as much for meat as we spend for our churches. A rearrangement of our family budget in the direction of more vegetables and fruit and other forms of food is inevitable, and is, in fact, taking place. War-time discipline had led to the discovery of new foods, with much resulting benefit.

There is another great change in consumption habit which must now come *as a result of prohibition*. We have been consuming over two billion dollars' worth of intoxicating liquors. As a matter of fact, our meat bill and our bill for intoxicants were about alike, and together meat and alcoholics totaled considerably over one half of all that we put into our mouths—an arresting fact all by itself. *Every time a year rolled by we had spent nearly five billion dollars at the butcher shop and at the saloon.* For this same expenditure we could have built five times as many colleges and universities as we have now, and we could have paid the cost of running the Postoffice Department for twenty years with one year's expenditure for these two things.

INCREASING CONSUMPTION OF NEW
COMMODITIES

It can readily be seen, therefore, that merely with regard to meat and drink our change in consumption habits is going to be quite radical. The two and

a quarter billion dollars spent for alcoholic drinks cannot now be spent that way; how *will* they be spent? It is already evident that they are being spent for more food, more recreation, more savings, more insurance, more education, more books, more automobiles, more candy.

The family menu will continue to show many changes in consumption habits. Many splendid foods which have never had a good chance are now more widely appreciated. This has notably happened to macaroni and spaghetti, for which there is now a very greatly increased consumption. Such articles of food as the lentil, and the entire pea and bean family, which serve as meat substitutes, are enjoying greatly increased patronage. We are also developing more into a fruit and vegetable-eating nation. New fruits and new vegetables are constantly making new friends.

Substitutes for animal fat are also having a greatly increased vogue already, and will continue to have a still greater popularity. Lard substitutes and salad oils made out of cocoanut oil, cottonseed oil, and peanut oil, are already strongly in favor; and a spread for butter which really does not deserve to be deprecated by the words "butter substitute," made from cocoanut oil, is going to be very widely and increasingly used, as it long has been used and appreciated abroad. Our per capita consumption of margarine is only 3 pounds, whereas in Denmark it is 44 and in England 11 pounds.

The American woman's standards of purchase are also higher, and her relative sense of values sharper. *She is more desirous of really good quality than ever before* in merchandise where quality counts. It has often been said slightlying of this country that we bought a greater amount of worthless merchandise of poor lasting qualities

and of no æsthetic beauty than almost any other civilized country. The war's experience in commodity purchases has taught us that quality pays because it lasts longer and has greater beauty and fitness. There will be fewer houses filled with cheap imitations of period furniture and other miscellaneous "gimcracks." Even our wall papers will be less ambitious, ornate, and oppressive.

We are not a markedly saving nation, although we now have about 28,000,000 bank depositors.⁶ We are a markedly *consuming* nation; we may be said to be in an era of family money-spending, to develop absolutely new standards of living, in keeping with modern science and modern outlook on life. The bathtub is produced, and American family budgets soon include it as a necessity (and later develop the two-bathroom standard!) The automobile is invented, and today it too is absorbed in the family budget as an economic necessity. Ditto the phonograph, and ditto the telephone and the radio.

NATIONAL OUTPUT INCREASING

We have studied in some detail the new wealth and the new consumption standards of America. What of the *production* standards? Can it be said that we consume more, but produce less? Is the American worker becoming more or less of a drone, his family more or less of a parasite? Are his increased food, recreation, comfort, education, and opportunities resulting in a lowering of volume of production?

These are searching, vital questions. When we seek for their answer we discover that the increase in total national income is less remarkable, even, than *the increase in production* since the new century began. *Although the number of people working on the farm is today almost precisely the same as it*

⁶ Statement by U. S. Treasury Department, in leaflet *How to Save Your Savings*, 1924.

was in 1900, the output of food and agricultural products has increased 40 per cent. This is a very great and significant advance, which alone has pushed up the standards of living of city and country alike. It has meant a greater per capita wealth for the farm folk, and less drudgery. It is the reason for the immensely increased standards of consumption on the farm; a phenomenon which has greatly altered the rural outlook and social status, despite the recent lamentations over the Northwest wheat farmers. I have talked at farmers' institutes from New England west to Utah, and never have ceased marveling at the farmers' automobiles, electric light plants, player pianos, hot and cold running water, roll-top desk and typewriter, and metropolitan clothes for the family. Indeed, the automobile, the telephone, and the radio have metropolitanized the farmer rather completely. His radio set is for him a stock ticker in his own home, and his automobile has given himself and his family a shopping range of 25 or 30 miles instead of about 5 in horse and carriage days. This means less mail order buying; closer bargaining, wider choice, and many increased items in the family budget. It has even come to mean ice on the farm and fresh fruits and vegetables out of season. There is many a farm today which uses on its table butter churned hundreds of miles away, fruits from California, vegetables from southern climes. Yes, vegetables sold to farmers out of season! Why not?

We have seen what an increase in productivity has done for the farmer. What of the worker in factory, mine and railroad? The number of factory workers slightly more than doubled between 1900 and 1920, but the *output* increased in ratio of 228 to 100, comparing 1920 to 1900. The factory worker, too, has increased his productivity, by

60 per cent. The mine worker increased his productivity in ratio of 136 to 100, and the railroad worker 118.⁷

INCREASE IN WAGES VS. LIVING

How has he been paid for this? Wages rose until they were more than three times as high in 1920 as they were in 1900. By 1923 they were *just about* three times as high, and in 1924 they have declined somewhat. Taking prices in 1923 for a comparison with wages, commodities were 90 per cent higher than in 1920, and these prices have come down since then more rapidly than wages. In other words, in 1923 workers were being paid approximately 300 per cent higher wages than in 1900, and were only paying about 90 per cent higher prices: a sheer net gain of 210 per cent in income, for which workers had rendered back a 60 per cent increase in productivity. Here, again, emerge some significant points of view regarding present and future. For each gain of 1 per cent in productivity the American worker increased his income $3\frac{1}{2}$ per cent, while prices increased only $1\frac{1}{2}$ per cent. Obviously it is an American policy of proved success that higher productivity pays, or, conversely, that higher wages and higher standards of living make for greater productivity. With American business so largely domestic, it is therefore the soundest of national welfare policies that the standards of living be high among all classes, so that our increased manufacturing capacity may be used, and so that good wages be paid for competent, productive labor.

The bugaboo of increased cost of living must therefore be viewed from the angle of family earning and pur-

⁷ Figures from David Friday's compilation for National Transportation Council Research Institute, 1924.

chasing power and broad national prosperity. How well I remember the alarm and agitation in pre-war years over the "h. c. of l." (high cost of living). The fact that from the "Bryan" year of 1896 to 1914 the average price of wholesale commodities rose 50 per cent seemed cataclysmic, disastrous; it was certainly one of the most extensive increases in prices ever seen in modern times. But the war period taught us how rapid changes could really be! From spring to spring of 1919-1920 there was a 30 per cent rise.⁸ That was breath-taking; but in the next year or year and a half there was a drop of 45 per cent; a consumer strike we called it then, though it was superinduced by more powerful economic factors than that.

We are today not so excited as we once were regarding the purchasing power of a dollar, for wages have out-distanced all price increases, and we have on the one hand, probable future labor shortage through restricted immigration, and on the other hand, a gradual further settling downward of prices. The purchasing power of the dollar for all commodities in June, 1924, was approximately 67 cents⁹ as compared with January, 1913. With our national income still approximately double what it was in 1913, and prognostications of an upward trend in 1925, we are naturally not as deeply concerned with prices as we are with production and consumption and greater stability. It will take a long

time to fully assimilate the great changes which have already come about. Great numbers of families are still in a formative period in regard to standards of living.

The distribution of income in the United States is a matter for profound reflection. The government's statistics of income taxpayers show that in 1917 there were 2,479,465 people with incomes from \$1,000 to \$3,000. By 1922 (latest year available) this number of people had almost *doubled*—4,601,079. This is a very amazing change in five years, and is reflected also in the 1,200 per cent increase in the number of automobile owners since 1913. It is especially germane to our discussion because it indicates a *vast broadening of the level of comfortable family budgets*. It means a scooping up out of the dark regions of family poverty, millions of families who now become what one might term "regular American families"—capable of purchasing modern sanitary articles, a more varied and healthful diet, more and better clothes, and provide more schooling for their children.

These families are new to the suddenly raised levels of consumption; new to the responsibilities and opportunities such new levels afford for their own best welfare and cultural advancement. The next decade or two should be regarded as an assimilative period for the epochal changes of the past decade, and for the rounding out and stabilizing of our facilities, habits, institutions, and points of view with regard to family welfare.

⁸ U. S. Bureau of Labor Index.

⁹ Based on U. S. Bureau of Labor figures.

Breaking Down Sales Resistance in Industrial Selling¹

• A Survey of the Buying Habits of Industry

By MALCOLM MUIR

Vice-President, McGraw-Hill Company, Inc.

BUYING habits of Industry, like all habits, are subject to analysis. They are not intangible. They can be checked and weighed, the same as any other commodity. And once understood, the method of getting at industrial buying power is simple and direct.

In the interest of manufacturers selling to Industry, the McGraw-Hill Company presents the results of an unusual survey of these buying habits. This survey is based upon information obtained from Industry itself. Thus, through the medium of the survey digested in this booklet, Industry is given voice and states clearly the factors that determine how goods are moved from industry to industry.

In every sale to Industry there are four cardinal principles to be followed before the sale is consummated. Each principle represents an essential step in breaking down the barrier of sales resistance surrounding the industrial buyer.

These principles are not at all mysterious. As shown in the above illustration they are:

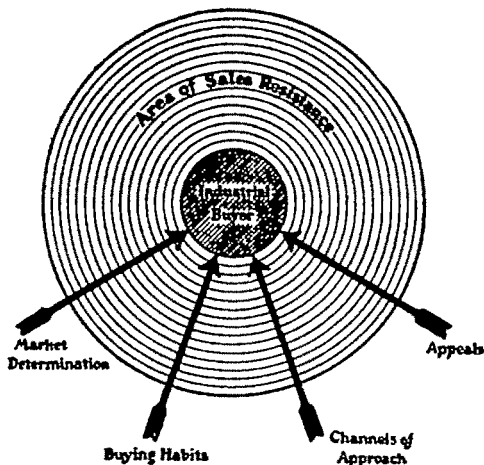
(1) The worth-while markets must be determined.

(2) Buying habits of these markets must be analyzed.

(3) Channels of direct approach to the buyers must be selected.

(4) The strongest possible appeal to these buyers must be prepared.

When these principles are adhered to and applied to the specific problems of any manufacturer they automatically result in policies which bring high sales efficiency.



A BIRDSEYE PICTURE OF INDUSTRY

How large is the industrial market as a whole?

There are certain yardsticks which answer this question and which measure Industry for us; for example, the percentage of people engaged in gainful occupations:

Forty-five per cent of all such people

¹ Advertising Counselors' Staff, McGraw-Hill Publications.

are employed by Industry, 26.4 per cent by agriculture and lesser percentages by trade, personal service and miscellaneous divisions.

Truly, Industry is the workshop of the world, a mill that never ceases grinding.

Furthermore 54.5 per cent, or \$61,000,000,000 of America's business income is produced by Industry.

- And Industry spends \$35,500,000,000 a year of this income for materials, equipment, supplies, power and new plants (not including labor) in order that its work may be carried on economically and with the most efficient methods. Also, it is interesting to note that a substantial amount of this great expenditure is for projects charged to capital investment.

THE STRUCTURE OF INDUSTRY

How is Industry divided and concentrated so that the manufacturer with a definite sales problem can pick out any particular section and bring his sales ammunition to bear upon his real markets?

Again the answer is simple; neither complicated nor mysterious, for the structure of Industry as a whole is composed of certain definite divisions, any of which may be segregated and intensively cultivated. With a proper working knowledge of these divisions the manufacturer can avoid the wasteful policy of scattering, which has been the downfall of many sales campaigns.

Briefly, Industry is composed of two basic groups—"Service Industries" and "Manufacturing Industries"—and these have

NINE MAJOR DIVISIONS

Service Industries contribute four of these divisions:

- (1) Mines and quarries.
- (2) Public utilities.
- (3) Power plants.
- (4) New construction.

Manufacturing industries (350 different types) group into five divisions:

(1) *Process Industries*, which take raw materials and convert them into finished products: for example, the manufacture of rubber and cotton into automobile tires.

(2) *Mechanical Industries*, which make products from metal; the produc-

tion of the automobile from steel, aluminum, copper and other metals.

(3) *Textile Industries* such as cotton mills.

(4) *Lumber Industries*, including sawmills and plants making finished products.

(5) *Miscellaneous Industries*; a few important industries as tobacco, but mainly small groups (manufacturers of artificial limbs, etc.) which take their production practices from the larger established industries.

Industrial markets for most products follow these group classifications rather than the restrictions of a single industry. For example, the sale of evaporators is not confined to any one industry. The market for this apparatus is the "process industries" as a group, since evaporation is a process common to the operations of most of these industries.

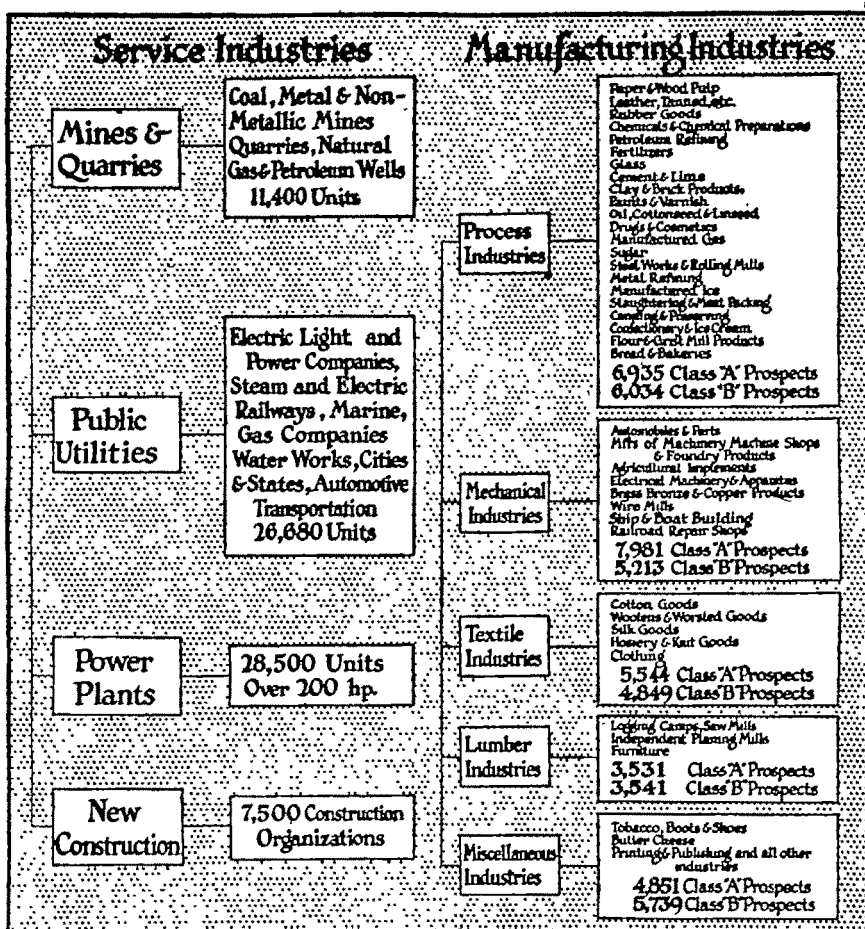
However, the nine major divisions of the industrial market may easily be subdivided to determine the exact number of prospects in any single industry where this is desired. This has been carried out as noted in the explanatory matter under the chart on page 85.

LOCATING THE PROFITABLE MARKETS

For the manufacturer whose product can be sold to every field, Industry offers a maximum sales objective of 125,000 units. This figure, of course, eliminates small operations such as "wagon" mines and "back-lot" manufacturers. These businesses rarely are stable, and are apt to be liabilities rather than assets from a sales standpoint.

The 125,000 units employ over 95 per cent of all the workers in Industry. They produce a corresponding percentage of the income. They spend over 95 per cent of the \$35,500,000,000.

The importance of market determination which establishes for any product the profitable industrial groups among



THE BUYING STRUCTURE OF INDUSTRY

The above chart is a skeleton outline for the classification of Industry. This detailed analysis classifies every industry and furnishes the number of worth-while prospects in each.

these 125,000 cannot be overemphasized.

The manufacturer must select and rate his available markets. He then can attack these one by one in order of importance, building surely until he reaches the limit of his plant capacity.

As an example of the dangers when even a large concern scatters too widely, there is the case of a leading manufacturer of equipment that can be used by every industry. This manufacturer adopted sales plans to reach out for all

possible business, irrespective of the size or location of the orders. His business increased slightly, but his profits shrunk alarmingly. Later investigation showed that increased sales costs had more than eaten up the possible gain. He found that he had lost money on every customer who purchased less than \$200 a year. He really had but 40,000 profitable prospects in the whole country, yet these represented 96 per cent of the total purchases of his type of equipment. In the effort to reach

everywhere he had dissipated his energies so that he had failed to entrench himself in his profitable markets. He had in fact thrown away his actual profits chasing "will-of-the-wisp" business.

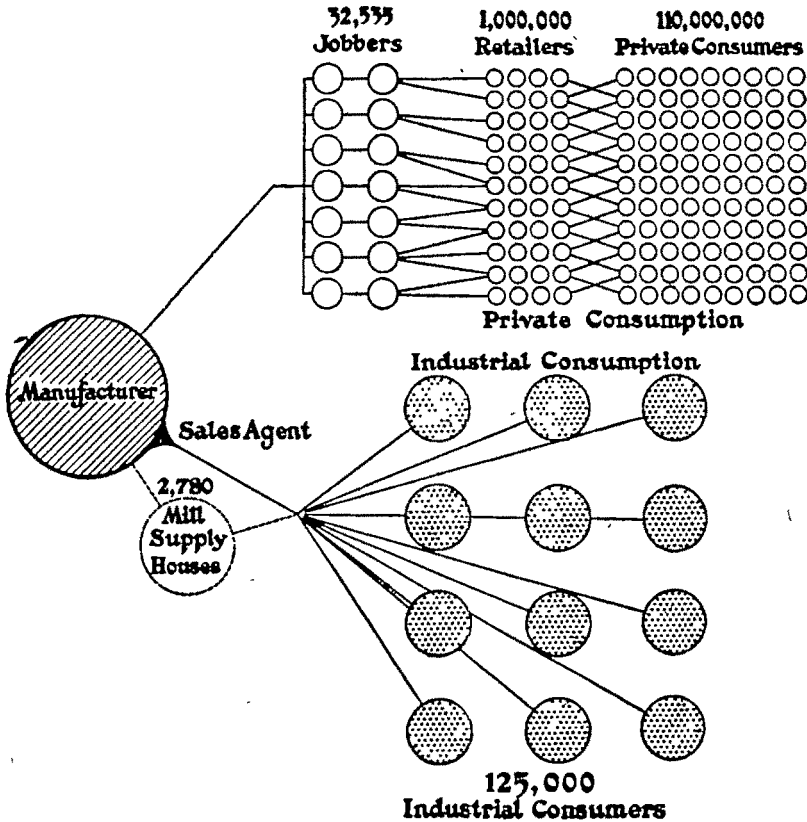
On the other hand, the present successful leaders in most lines of industrial equipment have refused to be blinded by the scattered border-line business. These leaders have determined their profitable markets, and

have built a commanding sales and service position in these, one by one, as their plant capacity expanded.

This principle of market selection, in fact, is woven into the underlying requirements of industrial buying itself.

INDUSTRIAL BUYING

Industrial buying has been aptly defined as the "movement of goods from Industry to Industry," for each indus-



FLOW SHEET OF DISTRIBUTION FOR PRIVATE AND INDUSTRIAL CONSUMPTION

There is a fundamental difference—emphasized in this chart—between the distribution of products for private and industrial consumption.

Distribution to private consumers obviously proceeds through jobber and dealer channels. The manufacturer's problem here is to transmit his enthusiasm for his product through these successive organizations on to the ultimate consumer.

The manufacturer of products sold to Industry, however, is in direct contact with his customers. Even where the product is stocked with supply houses, the manufacturer can go direct to his important customers. The real problem of the manufacturer selling to Industry is to show his customers where and how to use his equipment.

try is dependent upon other industries for its materials, supplies and equipment. Without this constant interchange of buying the wheels of Industry would stop.

Thus, automobile manufacturers turn naturally to other industries for the material and equipment used in building their cars. Steel must be purchased from the steel mill, machine tools from the machine tool manufacturer, electrical equipment from the electrical industry.

This is industrial buying.

The industrial buyer uses machinery and equipment as a means to an end. He buys on a basis of performance. The buyer and the seller must work together; the one rendering a definite service, the other expecting it. The seller must understand exactly what the buyer proposes to do with the equipment in order to talk "results."

The manufacturer who fully cultivates an important field becomes regarded as a specialist in the field. He builds on the foundation of confidence and holds his grip in good times and bad.

Summing up then, the market requirements for profitable industrial selling are:

(1) *Sufficient scope for sales expansion.*

(2) *Concentration of the business into worth-while buying units.*

For these markets we have, as seen, a selection from a maximum of 125,000 industrial enterprises. But there is a further selection of the classes of men who are the real buyers of equipment.

Over 17,000,000 people are employed by the 125,000 units. The great percentage of these 17,000,000, however, are factory hands, laborers and clerks. Executives, operating heads, superintendents, engineers, department heads and others in whom the manufacturer might be interested represent but a small fraction of the total.

It is this thin but vitally important strata of men in Industry that actually controls the buying.

As the next step, therefore, we may consider figures such as those shown by the chart on page 88.

The small group at the top of the column covers all of those who hold in their hands the key to Industrial buying.

BUYING CLASSES

Carrying out the basic principles of industrial sales promotion we must determine then by further study of this upper group:

(1) Which particular men control the buying for industrial equipment?

(2) What is the most effective channel of approach to these men through advertising?

(3) What is the strongest appeal?

THE BUYING HABITS OF INDUSTRY

WHO CONTROLS BUYING?

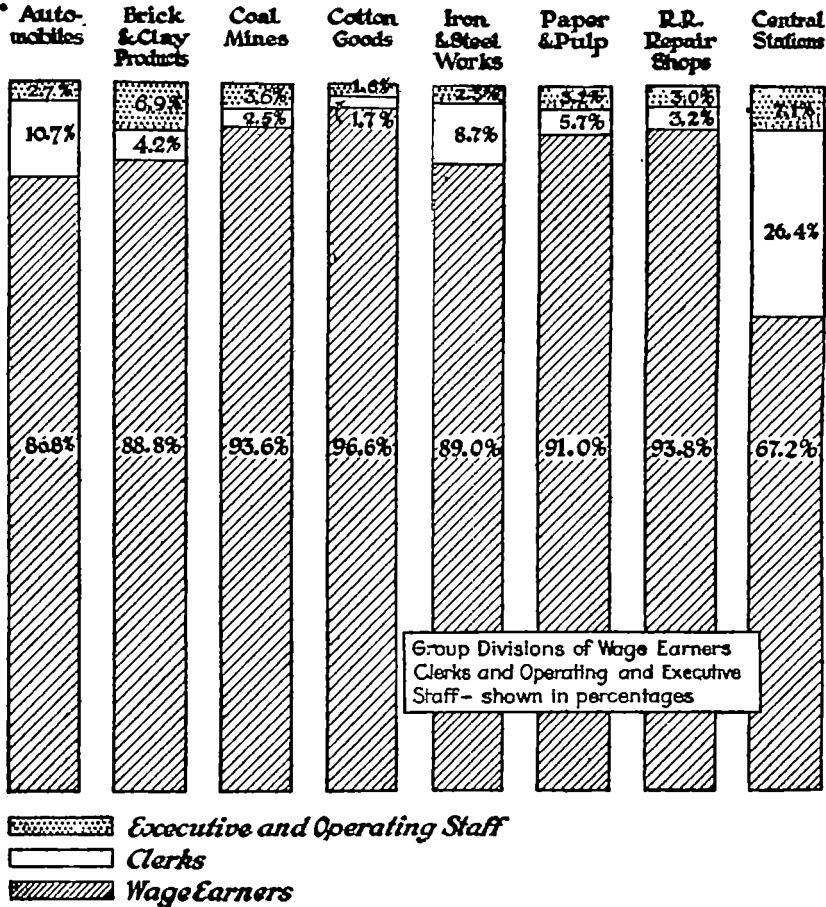
Who are the men that really control the markets for the products sold to Industry?

The president or general manager of the principal manufacturing enterprises in the country were requested to list the men in their organizations who, (1) initiate the installation of equipment and (2) specify the type and make.

The companies which revealed their buying practices speak for over one hundred separate industries—they employ an aggregate of more than \$7,000,000,000 capital.¹

The facts these companies furnished check two factors that are vital in promoting the sale of products to Industry:

¹ This investigation was conducted by Ernst & Ernst.



THE CONCENTRATION OF BUYING POWER IN REPRESENTATIVE INDUSTRIES

The purpose of this chart is to show the relative percentage of those in industry who are (1) wage earners, (2) clerks, and (3) men responsible for administrative, sales and production activities.

The manufacturer's interest in the first two groups usually is negligible; the proposition, therefore, is to determine which men in the third group actually control buying. Obviously, there are many in this last group who do not influence purchases of equipment, for example, those in sales departments.

(1) Buying power² for industrial equipment lies with the men responsible for the production activities of the business rather than with the general administrative executives.

(2) "Initiating" and "specifying" power are in the hands of the same in-

dividuals. By "initiating" is meant the decision that new equipment is required. By "specifying" is meant the selection of the type and make of equipment.

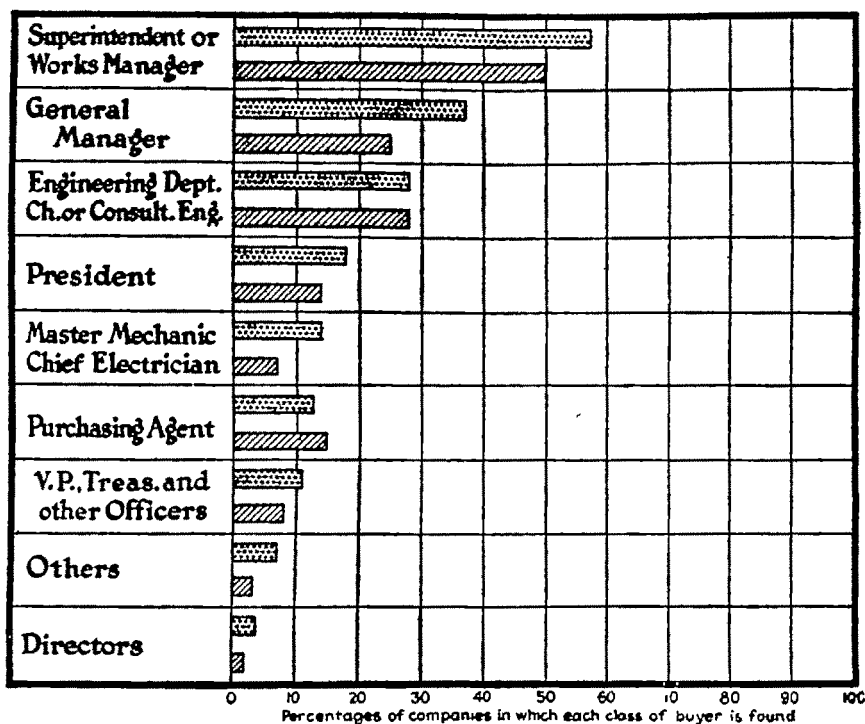
Superintendents and works managers are the leading buying influence for industrial equipment. (See chart on page 89.) General managers are next; then the chief engineers and engineering departments. The men in these major groups are clearly men with direct production

² By "buyer" or "buying power" is meant, of course, the man who initiates the installation or specifies the equipment. This is distinguished in many cases from the man who issues the formal orders as a matter of routine.

responsibilities who are accountable for results that can be secured only through the proper application of machinery and equipment.

The place of the president as the fourth factor is interesting. Presidents are sometimes thought to be an important buying class for industrial products, whereas they usually are general administrative executives taking no part in the selection of equipment.

Industry showed this fact clearly in the survey. Analysis of the presidents and other officers that did report shows that these men take a hand in buying only where they personally share the responsibilities for production activities. This condition can occur in the so-called "one-man" companies, and in certain larger organizations, where the profits depend primarily upon special production processes.



 *The men who initiate installations*

 *The men who specify the type and make of equipment*

BUYING POWER FOR INDUSTRIAL EQUIPMENT

The length of the dotted bars represents the relative importance of different types of men in initiating installations.

The shaded bars represent their importance in specifying the type and make of equipment. In small or moderate sized companies one man may hold full responsibility for purchasing equipment; in large companies the responsibility usually is delegated to specialists in different lines.

The relative importance of the production officials is emphasized strikingly when the bars for the superintendents, general managers, engineering departments, master mechanics and chief electricians are placed end to end in comparison with the total length of the bars for general executive or purchasing titles.

• Continuing from the president, the figures are charted for the lesser buying groups down finally to the directors who, as shown, take no appreciable part in initiating installations or specifying equipment. This is not surprising. The director's participation in business is confined primarily to broad policies and finance.

The men who must be sold, then, are those in charge of production, engineering and maintenance.

These men must be sought by responsibilities, not by title.

CHANNELS OF APPROACH

Once the manufacturer has determined his profitable markets and has located the buyers in these markets, he must decide how best to extend and back up the work of his sales force by influencing these buyers through advertising.

The question is, what type of medium provides direct contact with the industrial buyer?

To ascertain this it has been common practice to present a long list of names of publications and ask the recipient to check the ones he "reads." This type of test was discarded. A man invariably will check a number of publications without regard to the purpose for which he uses them. Such results may be highly misleading to the manufacturer who seeks a direct path to his industrial buyers.

After all, there is no step more essential than the selection of the proper mediums. If the medium is not the one which the buyer says he actually uses in purchasing equipment then the force of the entire plan will be scattered to the winds like seed sown from an airplane.

The buyer was forced to name mediums without assistance or prompting. No publications were listed. In each case the industrial buyer was asked this definite question:

"In what publication should advertising of equipment be published to be most useful to your organization?"

There was no easy checking. The man in Industry who answered this question was forced, first, to select from all publications those in which he actually used the advertising pages as a guide in selecting equipment; second, to write down the names of these publications.

Industry, therefore, was compelled to write its own audit without any clues which might influence its statements.

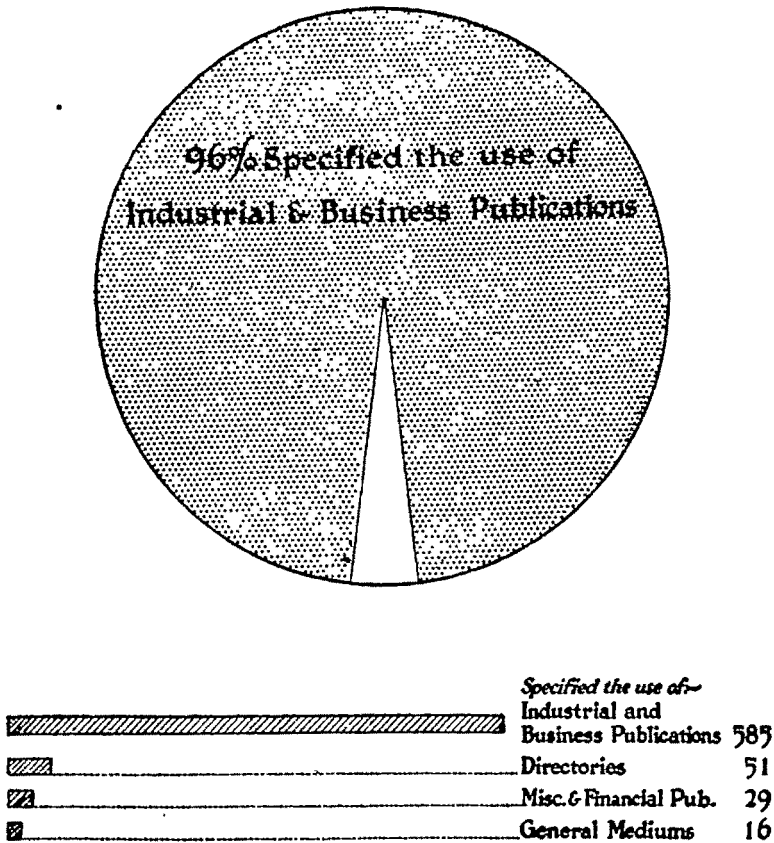
THE VOTE

Over 96 per cent specified the use of industrial or business publications as those in which they desired the manufacturer to tell about his equipment. (See charts on pages 91 and 92.) The names of publications were given specifically by the great majority. In a few cases, classes of publications were specified, for example, "Engineering Journals."

Some may ask why the industrial publication is universally named as the direct channel of approach to the industrial buyer.

The answer lies in the unprecedented development of Industry itself during the last half century. For example, we have watched the evolution of mass production, we have seen the application of electricity as a servant for every workman, manufacturing has expanded thirty fold, mining, public works and transportation have been forced to follow at a corresponding pace—all within this short span of years.

Each phase of this progress has rested on the application of engineering sciences. Hand in hand with this expansion, therefore, has gone the need for a leadership to stimulate the progress and voice the policies of Industry. A mine in Alaska, for example, may develop an improved method. How can



CLASSES OF PUBLICATIONS WHICH MANUFACTURERS USE IN BUYING INDUSTRIAL EQUIPMENT

The vote charted here was obtained from 609 leading manufacturing concerns. These concerns are located in over one hundred separate industries. Many of the concerns which reported are of such magnitude that their practices set standards for whole industries. The capital employed, in fact, by the companies which specified publications approximates \$5,000,000,000.

the mine manager in Africa apply this advancement in the art except through knowledge obtained from a source in which he places his trust?

It is the industrial journal that serves this function. The worthy industrial journal interprets, analyzes and criticizes—all in the "code" of the industry it serves. It is a working tool.

It is not strange, then, that the industrial buyer almost universally has reported that he uses the advertising pages of industrial journals as a buying guide for equipment, materials and

supplies—that the industrial journal is a direct path to the industrial buyer.

ADVERTISING REQUIREMENTS OF
INDUSTRIAL BUYERS

The final question then is, what type of information can the manufacturer furnish most effectively in these advertising pages? This is the fourth and last of the fundamental principles of industrial sales development.

Opinions were obtained from some of the most exacting buyers in Industry. They selected leading units throughout

the manufacturing and service industries and asked:

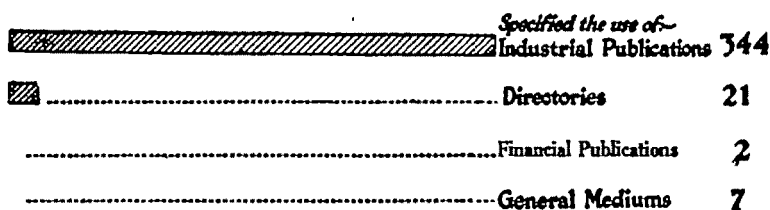
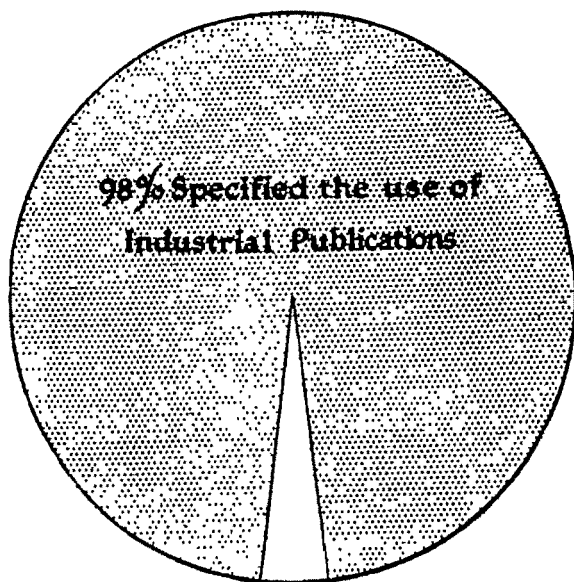
"What information should manufacturers of equipment furnish in their advertising to be most helpful to you?"

The chart on page 93 analyzes the data secured.

The industrial buyer wants performance facts. He wants to know what the product will do rather than how it is made. He wants to know all possible uses of the product. He wants the manufacturer to describe installations,

to give working data and cost data and to describe new features from the standpoint of the service they give.

Here we see the same self-interest in Industry that is the motive force back of so many of mankind's achievements. The man whose success depends upon his ability to produce a product is interested in a manufacturer's equipment only from one viewpoint—that is whether or not this equipment brings increased production efficiency, for in Industry equipment as stated is only the



CLASSES OF PUBLICATIONS WHICH PUBLIC UTILITIES, MINES AND CONSTRUCTION COMPANIES USE IN BUYING INDUSTRIAL EQUIPMENT

As with the manufacturers, the organizations which reported for the service industries were highly representative of the practice in their fields,—many of the utilities and mines, in fact, operate groups of properties.

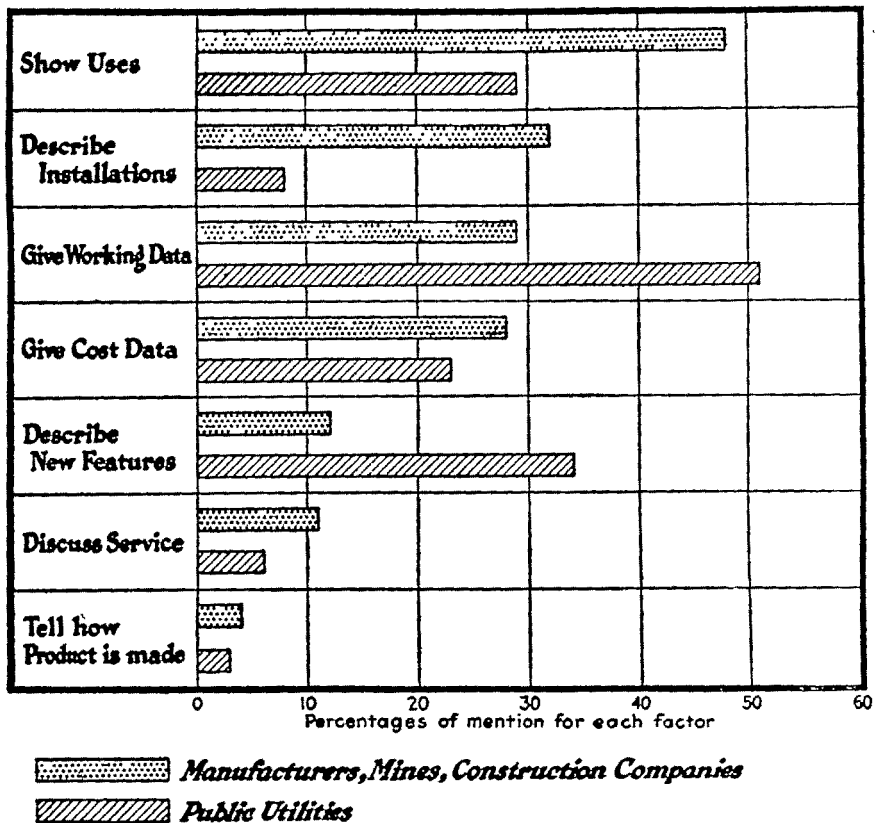
means to an end—and it is the “end” in which the industrial buyer is interested.

This principle applies not only to the advertising or copy appeal but to the work of salesmen. It is a basic principle that must be woven in the fabric of the entire sales policy. Whether it is a question of the development of specialized salesmen, the building of a salesman’s data-book, or whether it is purely a question of the most effective copy appeal, the industrial buyer must

be approached from the viewpoint of the *performance possibilities* of the equipment.

In applying this principle to his own advertising the manufacturer will see at once that it emphasizes the importance of addressing each industrial group in terms of the business problems of that group, *i.e.*, specialized copy.

For example, if a manufacturer makes conveying machinery, his appeal to the



ADVERTISING REQUIREMENTS OF INDUSTRIAL BUYERS

The difference in the requirements of public utilities and those of the manufacturing, mining and construction industries is interesting. The latter groups are continually applying new types of equipment; thus these buyers wish the advertising to show uses, to describe installations and of course to support this information with working and cost data.

The utilities, on the other hand, have standardized many of their practices. They therefore wish information that will enable them to compare the performance of different makes of equipment. For that reason, the outstanding requirements of the utility group are working and cost data and new features.

coal fields is radically different than his appeal to manufacturing industries. The equipment is bought by the coal mines on the basis of cost per ton of coal handled. The mine manager or superintendent requires information that shows the performance of the equipment under this light; facts about the performance of the same equipment in factory operations do not serve the purpose. On the other hand coal mine data means little to the factory manager.

This example clearly shows the necessity of specialized copy which, literally, talks to the industrial buyer in the "code" of his particular work.

THE FOUR CARDINAL PRINCIPLES

In light of all that has been contributed by Industry as to its buying habits, reference may be made again to the four cardinal principles which the manufacturer must apply if he is to get full return from his sales dollar.

The first essential step—the determination of the worth-while markets—is a clean-cut application of definite market analysis. Industry, despite its great ramifications, can be classified with exactness and the profitable markets segregated for any product.

When the manufacturer determines these markets and considers their rela-

tive importance, he will next bring facts to bear to ascertain which men control the buying. In other words, he will establish his buyers.

Third, in putting the influence of advertising behind his sales force to extend his markets and break down the barriers of sales resistance the manufacturer will select the direct channels of approach to his buyers.

Finally, he will develop as his sales and advertising policy the appeals that will tie his product directly to the production problem of each of his fields. He will thus win recognition for his organization as a specialist in the industries he selects.

When the manufacturer has established his sales promotion on these principles, he is obviously attacking his markets with the guarantee of high efficiency in sales and advertising effort. He is cutting directly through the area of sales resistance that surrounds the industrial buyer.

It is a fact that the outstanding industrial sales successes today have been built on these cardinal principles.

The development of America's production efficiency is one of the great romances of history. Hand in hand must now come an era of improved industrial sales efficiency, if America's economic position is to be maintained.

The Place of the Modern Distributive Survey in Relation to Maximum Sales

BY EDWIN G. BOOZ
Edwin G. Booz Surveys

THE place of the modern distributive survey to maximum sales is similar in use for the sales manager of today as the compass is to the mariner, explorer, or woodsman. The great magnetic power which draws the hands of the survey is truth—full and accurate information properly analyzed and organized. The extent of the sales executives' knowledge is directly proportionate to the diameter of his own information, and that which he draws upon.

The sales manager in the field of clothes, food, fuel, or shelter is on a tremendous sea of opportunity to meet the tremendous needs along any one of these fundamental lines. This sea is filled with many hazards on which innumerable businesses have been wrecked, by sailing the sea without the compass (distributive survey), which points to the channels of safe and profitable distribution.

Maximum sales are the result of applied intelligence. It is only ignorance of the right thing to do at the right time which holds sales below the possible maximum. The more intelligent is the approach to the problems of distribution the less is error likely to prevail. Appreciative of the soundness of these preliminary statements, business executives, charged with the problems of business distribution, have turned to business analysts to get the facts as to potential sales, the channels, the competition, the consumer's point of view and demand. Hence has come into the business men's vocabulary, rather commonly in the

last ten years, the studies called distributive or market surveys.

We shall consider in this article some of the applications of this new technic called the survey. We believe the reader will be interested in the illustrations as to the type of problems to which the survey has been applied so that he may better know when to employ it.

THE NATIONAL ADVERTISER

The first case that we might consider is "Where to place the effort to get maximum sales in the tire business?" We have in the United States 16,523,898 (as of July 1, 1924) owners of automobiles and trucks. The outer dimensions of this tire market can be figured rather accurately when one knows something about the depreciation on tires and cars on the one hand and the rate of growth and production of trucks and automobiles on the other hand.

To reach personally through an organization a market of 16,523,898 users of tires is too expensive for any business. Consequently a less expensive method is sought through advertising mediums. There are 23,000 newspapers and 5,000 magazines in the United States which profess to reach a part of this gigantic tire market. Even with an appropriation of several million dollars, which was true in this case, maximum sales demand a survey to determine what publications these 16,523,898 owners read and prefer. The logical and profitable thing to do is to put this million dollar appropria-

tion into the publications which are sought and read by the tire users, thereby eliminating the millions of waste circulation which are offered. Do you see what a practical problem this would be for the sales and advertising managers?

The business insurance used in this case was a market survey. The facts of the survey are sought from a national cross-section of tire users numbering 100,000 people picked with proportionate distribution from coast to coast.

With a courteous letter and a prepared return post card more than fifty per cent of these people are glad to co-operate with the survey. They told us what publications they read and the order of their preference. When you know what kind of an automobile and on what road a man travels home at night it is a clear index as to where to reach his attention.

After one has the tire users' attention, the message that will be retained, or lost, depends upon the copy appeal and its presentation. This is the basis upon which media are selected today by modern advertising managers.

THE PUBLICATION

Everyone interested and informed on the problems of distribution knows how the publications have sought to convert their circulation from a mere list of names to a market of wealth-producing and wealth-spending citizens. To do this they have studied their subscribers to find out what they want and what they buy. Today, therefore, the so-called survey, or research department, is a part of practically every well-organized publication in the United States.

The findings of these conclusions and surveys have the strength of the publications well in hand. Indeed, one generally needs a discount for the bias

unintentionally inserted and the weakness which has not been disclosed. The data and information supplied should properly pass through trained outside hands.

Each publication is a channel of distribution. Practically every home in the United States is the beginning of one or more of these channels where we find considerable duplication among these publications. Every publication naturally thinks that it is the preferred medium of the home. As a matter of fact there is a waste at this point amounting to hundreds of millions of dollars each year and it takes a very careful comparative survey to determine which of these channels is navigable and profitable.

THE RETAILER

The larger retailers, applying their intelligence to their problems, have given a place to research bureaus which aid them in knowing more exactly where the markets are and the best approach to them. This has stabilized the retailers' business so that they can relate themselves to the constant barrage of sales talk which they are forced to listen to in trying to maintain a stock of goods which will show the proper turnover.

These retailers have found that the word "demand" is a strong word for the transitory film-like form which the desires of customers take. Only a small percentage of these desires take the form of a demand for a specific article made by a specific house. When retailers stop to think what the consumption is in the United States from 100,000,000 people for simple items like bread, meat, potatoes, milk, shoes, or stockings, his thought is likely to give him the same feeling that he gets when he steps into a desert of quicksand.

Let us ask ourselves what the maxi-

maximum sales are in one simple line in the United States. This will aid us in visualizing the size and maze of the cob-web field of distribution underlying a few of the thousands of lines and products in the United States.

There comes yearly into the United States 1,100,000,000 pounds of coffee. This coffee is distributed to 48 states, 11,000 cities and villages. It goes through an army of 5,000 salesmen and 75,000 retail stores.

There are 2,500 coffee roasters in the United States competing for the maximum sales. Where this coffee will be distributed is a question the survey can solve. The average retailer only sells 10 per cent of the coffee used in his own logical territory. The grocer is ignorant of this fact and has not surveyed his own market.

DISTRIBUTOR'S SURVEY—A DISTRIBUTOR'S PROBLEM

The problem arises in this form, "It is our desire to begin an investigation at Kansas City and later extend it to the St. Louis territory which will enable us to determine definitely and correctly the possibilities and probabilities ahead of us in our lines."

The fundamental questions raised and answered in the survey are:

1. Is the product right?
2. Is there a good market for it?
3. Can we always get the raw materials to manufacture it?
4. Can we develop our plants on a unit and process basis?
5. Can we sell it at a good profit?
6. What, if any, should be our problem of development?

Each of these simple direct questions call for further analysis which is as follows:

1. Is the product right?
 1. What is the composition of the product?
 2. What is it good for?
 3. Who helps make the product?

4. How long has it been on the market?
5. What results has it produced?
6. In what respects is it superior to other products?
7. Does the price to the dealer and consumer meet competition?
8. Is there a good profit to the dealer? How does it compare with other products?
9. Does it have the endorsement of government agencies?
10. How does it compare with the standards endorsed by the trade associations?

2. Is there a good market for it?

1. How much has been sold?
2. How has it been sold?
3. Why has it been sold?
4. Where has it been sold?
5. Where can it be sold?
6. What are the determining factors of the territory?
7. What has been the merchandising plan?
8. What is the proposed merchandising plan?
9. Is the merchandising plan sound?
10. What is the present demand for the product?
11. Is it a necessity?
12. What are the big factors underlying the future demand for it?
13. Is it a repeater sale?
14. Why is the Kansas City territory a market for it?
15. What has been the tendency in its consumption for the last ten years?
16. What is the competition for this trade?
17. What are the selling seasons for it?
18. What success has it had?
19. Has the missionary work been done for it?

3. Can we always get the raw materials to manufacture it?

1. Who controls the yards at Kansas City and St. Louis?
2. How long can we control the product?
3. What are the probabilities of not having the contract renewed?

4. What substitute source of the product exists in case competitors take the control?
5. Where are the sources of its composition?
6. Is the quantity assured for the future?
7. Is the control open?
8. What big factors of government regulation enter into consideration?
9. What will be the tendency in transportation of raw materials?
4. Can we develop our plants on a unit and progressive process basis?
 1. What is the manufacturing unit equipment for the product?
 2. Has the manufacturing been put on a progressive process basis?
 3. Can the process of manufacturing the product be successfully extended still further?
5. Can we sell it at a good profit?
 1. What profit has the product shown?
 2. What profit has been made on what has already been sold?
 3. What profit has been made on that sold by contract for this year?
 4. What is the estimated margin between production costs and selling price for this year?
 5. Will our manufacturing costs parallel those of our competitors?
6. What should be our program of development?
 1. How many can we produce this year?
 2. What is the balance we have to sell this year?
 3. How much can be sold next year?
 4. What per cent of increase in demand will the present plant accommodate?
 5. What is essential to larger production?
 6. How much land is needed in Kansas City to take care of the increase in the number of plants, warehouses, and storage space on a fifteen year basis?
 7. How many production units the size of the present plant should be built for next year?
 8. What is the required organization for the extension and operation of the product's company?
 9. Where should the general office be located in Kansas City?
 10. On what railroads should the plants be located in Kansas City?
 11. Should the product be analyzed and experimented with?
 12. What merchandising plan should be adopted?
 13. What competitors will need special study and attention?

CONCLUSION

The above long list of Socratic questions indicate that the distributive survey calls for innumerable facts. It takes an experienced and fertile research man to ask the brass-tack questions. Each one leads to darkened corners where the unassembled facts are hidden. When organized and analyzed they indicate the direction, distance, and character of the road to the sales manager.

Geographical Aspects of Industrial United States in Relation to Increased Wealth

By ALFRED G. WHITE

Professor of Geography and Industry, University of Pennsylvania

I. SIGNIFICANCE OF A MIDDLE CLASS IN THE DEVELOPMENT OF NATIONAL WEALTH

CIVILIZATION is closely associated with the accumulation of surplus wealth. Wealth on the scale with which we are familiar today is largely based on highly organized farming, extensive manufacturing, and participation in world trade. Such organization demands individuals of relatively high intelligence and efficiency. The development of a large middle class of property owners is one of the best guarantees of governmental stability upon which a rapid expansion of national wealth rests. Such a middle class is mainly made up of small farmers, factory wage earners, merchants, and employes of extensive modern transportation systems.

The tremendous development of organized merchandising in the United States is largely based on our great middle class of educated farmers and wage earners. Advertising in newspapers and magazines can only reach the man who can read. Our extensive selling campaigns are designed to reach large groups with a fairly high standard of living and good buying power. Our selling methods must be greatly modified when we attempt to reach the relatively backward peoples of many foreign countries where 50 to 80 per cent of the people are illiterate and most of the wealth is concentrated in the hands of a small group.

II. IMPORTANCE OF INDUSTRY IN CREATING SUCH A MIDDLE CLASS

From a distribution standpoint, there are two predominant types of market in the United States—the scattered farmer reached through the mail order catalogue and the small town store, and the massed city dweller who is largely engaged in manufacture and trade. The rapid increase in our urban population is closely related to the phenomenal recent expansion of industry in the United States.

The census of 1919 shows that about thirteen million persons are actually engaged in manufacturing and mechanical industries. This represents about 12 per cent of our total population. If we consider the additional number of persons who are dependent on these workers, we find that about one third of our total population is directly supported by this group of industries.

When we consider that the per cent of our total population engaged in these industries has doubled in the last fifty years, we get a fair measure of the tendency of our country to change from an agricultural nation and become more and more an industrial one.

The number of persons employed in manufacturing is steadily increasing in relative importance, while the number in agriculture is declining. In the last fifty years the per cent of those engaged in manufacturing and mechanical industries to the total of those gainfully employed has increased from 20 to 31

per cent, while for those engaged in agriculture it has declined from 28 to 26 per cent. It is evident that as our great vacant land area has been largely turned into farms, there is less room for our rapidly increasing population on the farm and that we must look more and more to the greater refinement of raw products by manufacture as an occupation for our people and as a source of increased wealth.

Forty-two per cent of our population now live in cities of 10,000 and over. About three quarters of our total manufacturing is located in the 747 cities of this group. This percentage would be considerably increased if the suburban industries really tributary to these cities could be included.

When we consider that a number of our industries, such as lumbering, smelting, oil refining, dairying, wood pulp, etc., are usually more or less isolated from cities because of the nature of the industry or the source of raw material, it is evident that manufacturing is primarily associated with city development. The recent trend of development shows an increasing per cent of manufacture in cities, especially those of larger size.

III. PREDOMINANT POSITION OF UNITED STATES AS AN INDUSTRIAL NATION

Today the United States is unquestionably the leading industrial nation of the world. This position has a solid geographic base in her vast extent of fertile lands and in her enormous and varied resources. No other great industrial nation is so nearly self-sufficient and so little dependent on outside sources of food power and raw materials. Mere mention of her overwhelming position in the world production of such essentials as coal, oil, iron ore, copper, and cotton is sufficient for the present discussion.

Of almost equal significance is her supremacy in the quantity and quality of man power. Not only does she have almost twice the population of any of her chief industrial competitors (the United Kingdom, Germany, France, Japan), but her people have higher average wealth and greater buying power. The enormous buying power of the home market is one of the biggest factors in our industrial development. It explains in large measure our lack of knowledge and interest in foreign markets until relatively recently.

IV. RAPID INDUSTRIAL EXPANSION OF THE UNITED STATES

The rapid expansion in the manufacturing industries of the United States during the last seventy years is without a parallel. Both the quantity and variety of products is almost bewildering. The capital invested has increased from one half billion dollars in 1849 to twenty-three billion in 1914 and to forty-four billion in 1919. The number of wage earners increased from about one million in 1849 to seven million in 1914 and to nine million in 1919. The annual wages paid have increased from about one quarter of a billion dollars in 1849 to four billion in 1914 and to ten and one-half billion in 1919.

The development has been especially rapid since 1880 and was a fairly steady upward movement until 1914. The tremendous expansion shown by the 1919 figures was due to the effects of the World War and is particularly noticeable in the figures of value and wages. The figures for the number of wage earners employed and for the total primary horse power used are better indications of the actual expansion than the inflated money figures.

Geographical factors have played an important part in this great industrial

expansion. For over two hundred years the early colonies along the Atlantic Coast were effectively shut off from the fertile interior of the continent by the great Appalachian Mountain barrier and the hills and mountains in New York and New England. Confined in a relative small area, much of which was not adapted to agriculture, attention early turned to fishing and trade. With the coming in of industrially trained settlers from Northern Europe, manufacturing early began on a small scale. The numerous small local water powers were an important factor in this period. With the development of canals and the coming of the railroad a rapid tide of settlement moved westward. The products of the cheap fertile lands of the Middle West brought disastrous competition to the poorer lands of the East. Attention was more and more turned to manufacture. The new West furnished a rapidly expanding home market for the products of the factories and the real industrial expansion of the United States began.

The opening of the anthracite coal mines of eastern Pennsylvania and later the great bituminous fields of the western part of the state was a big factor in the new development. The location of the manufacturing plants was in the coastal parts, along the great bays and rivers that stretched back towards the mountains and along the great routes of easiest access to the growing West. The industrially trained north European, migrating from a region of cool, changeable climate to one of similar character in the northeastern United States, stopped there to develop the old industries in a new setting. His descendants later moved on westward in the same general climatic zone to the Middle West. Here again, when farm machinery and increasing population created a surplus of labor,

it was only natural that manufacturing should develop. So rapid has been this development that it is hard to realize its great extent.

V. REGIONAL LOCATION OF MANUFACTURING

The location of industry is one of the most important factors of geographical interest. It suggests a study of basic natural resources, of easiest routes of transportation, of natural points of city location, and of the character and distribution of population. For the country as a whole, agriculture has probably passed its most rapid stage of expansion and further progress will be slower and less sensational. It appears that, on the other hand, manufacturing may develop rapidly in some sections that have hitherto been mainly agricultural. To the man who expects either to sell the products of the factory or to find customers in the city, dwelling wage earners employed by it, a knowledge of the facts and controlling principles in the regional location of industry is essential in the organization of sales territory and the planning of a sales campaign.

The chief fact brought out by an analysis of the distribution of industry in the United States is the predominance of two regions,—namely, the older Northeastern Seaboard region and the more recent expansion of the Middle West. The South and the Far West are of much less importance.

In determining the relative importance of these four great regions, the chief factors for consideration are the relative number employed, the total capital invested, the value added by manufacture and the amount of wages paid. While the percentage of the total for each of these factors varies to some extent, it is surprisingly uniform on the whole. Roughly the evidence of these various factors taken together

indicates that about 50 per cent of our manufacturing is in the Northeastern Seaboard region, about 35 per cent in the Middle West, about 9 per cent in the South and about 6 per cent in the far West.

The Northeastern Industrial District

This district comprises the seaboard region from New England to the Chesapeake Bay section and includes New England, New York, Pennsylvania, New Jersey, Delaware, Maryland, and Virginia. Compilations from the Census of Manufactures for 1919 shows that this section produced 46 per cent of the total value of manufactured products, had 50 per cent of the total capital investment, employed 50 per cent of the workers engaged in manufacture, paid 50 per cent of the total wage bill, had 45 per cent of the primary horse power used and represented 49 per cent of the value added by the processes of manufacture. These figures show that approximately half of the manufacturing of the country is done in this comparatively small section of our country.

The group of great manufacturing cities extending from New England to Chesapeake Bay represent the earliest natural centers of manufacture. Boston, New York, and Philadelphia suggest the regions of greatest importance, while Baltimore and Norfolk suggest the more recent tendency for expansion southward. The last census showed that there were 307 cities of 10,000 and over in this district.

A variety of geographical factors combine to explain the past and present importance of this district. The seaboard location, with great bays and rivers penetrating far inland, made it the great gateway of our foreign trade. Great mountain barriers, uncleared forests and lack of inland transportation shut it off from the fertile plains of the West in early days and helped turn

attention toward trade and manufacture. Many small streams furnished water power in the days before Pennsylvania coal was developed. Extensive areas of rough, poor land made agriculture less profitable. With the opening of the Erie Canal, with the coming of the railroads, with the development of great coal fields, with the decline of agriculture due to the competition of the cheap, fertile lands of the Middle West and with the growth of immigration from the industrial sections of Europe, manufacturing has gradually assumed vast proportions in in this region.

Today this section represents the greatest outlet and inlet for our vast foreign trade and the center of the many industrial enterprises dependent thereon. It is the focus of the main routes of commerce to the upper Mississippi Valley and the Great Lakes region.

The type of industries in this section suggests skilled labor and more complex organization. It is predominantly the great textile district of the country. The larger per cent of our cotton, woolen, silk, knit goods, and carpets are made here. Although less of the primary iron and steel products are manufactured, there has been a varied development of the elaboration of these products into machinery, tools, and hardware where the element of skilled labor is predominant and that of raw material of less importance. The manufacture of leather, of shoes, of chemicals, of jewelry, of clothing, of paper, of steel ships, and of pottery are illustrations of the varied industries found here. To an increasing extent are found industries related to our foreign trade in the import of raw materials and in the export of finished products. It will probably be the leading district for production for the foreign market. While the development of

other newer sections of our country may decrease its relative per cent of our total manufactures, the East will undoubtedly continue to depend largely on manufactures for its increased wealth while it draws its food supply from other regions.

The Middle West Industrial District

This district comprises the region tributary to the Great Lakes and the upper branches of the Mississippi River system and includes Ohio, parts of West Virginia and Kentucky, Indiana, Illinois, Michigan, and Wisconsin as its greatest industrial area, with the states of Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas as a second section of lesser importance.

Compilation from the Census of Manufactures for 1919 shows that this section produced 38 per cent of the total value of manufactured products, had 35 per cent of the total capital investment, employed 34 per cent of the workers engaged in manufacture, paid 35 per cent of the wage bill, had 34 per cent of the primary horse power used and represented 36 per cent of the value added by manufacture.

These figures show that approximately 35 per cent of the manufacturing of the country is done in this relatively large area which includes the best farming land of the United States.

This district has been characterized by an extremely rapid expansion in manufacture, which, if it continues at the present rate, will soon rival that of the older seaboard region. The westward migration of New Englanders furnished a labor supply adapted to manufacture. With the rapid expansion of population and the development of farm machinery, labor has been released from the farm for other industries. Geographical factors have played an important part in this area.

The Great Lakes and the Mississippi have furnished natural transportation routes along which most of the great manufacturing centers are located. Natural resources for manufacture have been abundant. Flour milling, dairying, meat packing, and vegetable canning have naturally developed in this great farming section. Extensive forests have been the basis of lumbering, paper and pulp production and furniture manufacture. The great coal fields, particularly of Illinois and Indiana, have furnished abundant fuel. The chief iron mines of the country are in this section. Some of the largest copper, lead, and zinc deposits are located here. One of the most important factors has been the recent enormous expansion of the automobile industry, which has naturally developed as an outgrowth of the farm machinery and vehicle industries. The enormously rich home market has greatly stimulated manufacture. Many products are now seeking an outlet in foreign markets. Every indication points to further rapid expansion in this district.

The Southern Industrial District

This district comprises the seaboard states of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas, and the inland states of Tennessee, Arkansas, and Oklahoma. Compilations from the Census of Manufactures show that this section produced 9 per cent of the total value of manufactured products, had 9 per cent of the total capital investment, employed 10 per cent of the workers engaged in manufacture, paid 9 per cent of the total wage bill, had 13 per cent of the primary horse power used and represented 9 per cent of the value added by the processes of manufacture. These figures show that about 9 per cent of the manufacturing of the country is done in this section.

The comparatively small industrial development of the South has been due to the great plantation and slave system which discouraged European immigration, to the economic demoralization which followed the Civil War, and possibly to the warmer climatic conditions. An industrial awakening seems to be now under way. The cotton textile industry has been attracted by cheap labor, extensive water power and nearness of raw material. An iron and steel industry has developed based on the coal and iron ore deposits of Alabama. The great pine forests are being lumbered. The abundant raw materials for fertilizer are being manufactured to enrich the soil impoverished by cotton and tobacco culture. In the main, the industries of this section are closely related to the natural resources. But the increased wealth derived from this source is rapidly stimulating a further development of this region, which holds out bright prospects for future expansion.

The Far Western District

This district comprises the eleven western states of Arizona, New Mexico, Colorado, Utah, Wyoming, Montana, Idaho, Washington, Oregon, California, and Nevada. In 1919, this section produced 6 per cent of the total value of manufactured products, had 6 per cent of the total capital investment, employed 6 per cent of the workers engaged in manufacture, paid 6 per cent of the total wage bill, had 8 per cent of the primary horse power used, and represented 6 per cent of the value added by manufacture.

These figures indicate that about 6 per cent of the manufacturing of the country is done in this district.

The vast, isolar area of the far West has only about nine million people. The scattered and scanty population have furnished only a small home mar-

ket. High priced labor, long distances and expensive transportation have retarded development. Mining, irrigation, and stock raising predominate in the interior states. Much of the industrial development has taken place in the more accessible coastal states. The great forests of the Northwest have given rise to an extensive lumber industry. Extensive water powers and the great oil industry of California furnish abundant fuel and power. Favorable position for trade with the Orient is another factor. On the whole, conditions are not favorable for the dense populations associated with extensive manufacturing and development must be relatively slow compared to the other great sections of the country.

VI. NEED FOR GEOGRAPHICAL RESEARCH IN ANALYZING INDUSTRIAL DEVELOPMENT

This brief review of the development and location of manufacturing in the United States suggests the complexity of the problem and the need for more research on many geographical aspects of the subject of particular interest from a merchandising standpoint. Manufactured products are ready to sell to the consumer and usually involve reaching a larger and more scattered group of customers than do crude or semi-finished materials. Competition is keener in many lines. Advertising is more essential where variation in the quality and type of goods is possible. New inventions and products offer opportunities for selling expansion. Changes in the size or organization or location of industry may seriously alter the existing channels of distribution.

The possible change in the location of industry is a serious problem. Will the phenomenal expansion of manufacture in the Middle West continue?

Will industry decline in the older East or be forced to seek foreign markets to a larger degree? How far can a further expansion be expected in the South? Is industry tending to decentralize and become more scattered or will it tend to further swell the population of our large cities? What effect will the long distance transmission of electric power have? How far will the truck emancipate the factory from dependence on the railroads? How long will the fundamental resources, upon which many of our industries depend, last? These and many other questions can only be partially answered at the present time.

The relation of climate to the most efficient development of manufacturing is one which is interesting many ge-

ographers. What effect does humidity, daily changes in temperature, and seasonal changes in temperature have on the efficiency of factory workers? Will the north temperate zone continue to supply the larger part of the manufactured products entering into foreign trade? Will the tropical regions ultimately do their own manufacturing or will they continue to trade food and raw materials in return for the products of northern factories? These problems all have a close relation to the distribution of the future increase in the wealth of nations. At present every indication points to the rapid relative increase of manufacturing in the United States and to its being the predominant factor in the further increase of wealth in this country.

Scientific Marketing of Farm Products as Illustrated by the Marketing of Eggs

By EARL W. BENJAMIN

Sales Manager and Treasurer, Pacific Egg Producers

THERE is an existing science of marketing. It is a science developed after ages of struggling by individuals to discover rules of action to be incorporated into their business. The rewards for each success in adding to the array of truths making up our present science have been survival, additional profits, pleasures, public praise, self-satisfaction, and the like.

The use of eggs as the product to be studied in tracing the development of scientific marketing is particularly fortunate. Eggs are a common food supply throughout the world, and are produced and consumed in small units. It is in marketing such a product that the keenest competition occurs between distributors, large and small, responsible and irresponsible, skilled and unskilled. Only a small amount of equipment is needed, only a little cash or credit, and a little work. Thus many persons can engage in the business. Consumers are apparently more chary of permitting profit in the handling of a necessary food product than in the handling of non-essentials and luxuries. Both the producers and the consumers of the usual small units are willing to patronize small distributors and frequently favor them over large ones.

GAP BETWEEN PRODUCER AND CONSUMER WIDENS

From the earliest days of egg marketing in any community the condition has gradually changed from that of the producer and consumer combined in the same person, to that of the pro-

ducer trading direct with the consumer. The irregularity of supply and demand, however, usually led to the introduction of a third party or market man who maintained a continuous market.

From the early days of direct contact, the gap has gradually widened. Developments of new, widely separated agricultural areas and the growth of the great centers of population have greatly increased the problems of transporting the quality of eggs at the time, in the quantity, and from the place the producer produces them to the place, in the quantity, at the time, and of the quality the consumer consumes them. Both egg production and consumption are seasonal as to quantity and quality, and are also affected by such local conditions as storms, and heat or cold waves. New methods of handling the eggs, and geographical designations of grades help to overcome the geographical difficulties. The quantity of eggs handled in the United States has probably increased over 600 per cent since 1850.

The remarkable development of our great cities has added greatly to the problem of distribution. The suburban residential sections have been spreading out farther, and city apartments have been rising higher and been crowded closer together, and each new device permitting a family to live in less space, and yet call it a home, is hailed as a triumph. Due to traffic congestion, it is impossible for housewives to do their individual marketing as they used to do, and similarly it is impossible for a farmer to properly do

his farming and also take his produce to the public market or peddle his products in the nearby city.

FUNCTIONAL SPECIALIZATION

The limitations of human performance, and the tremendous variety and number of activities pressing for attention, have encouraged almost every conceivable line of specialization.

The distributors have changed their methods, enlarged or reduced their activities, merged or subdivided, been forced out or retired, or new ones have engaged in the business, due to the continuous struggle for economic efficiencies.

The functions which must be performed during the full process of market distribution include assembling, grading, packing, transporting, storing, assuming risk, financing, buying and selling, and distributing and allotting.¹ These functions will not be discussed here; it is sufficient to note the results of this specialization.

The distributors assuming the risk of ownership have become naturally and competitively grouped as follows:

(1. *Farmer.*) The farmer who does the producing also performs more or less of the marketing functions; these include gathering the eggs, and frequently supplying the cases, and grading, packing, and cleaning the eggs.

(2. *Huckster.*) When the available eggs are in sufficient volume, men find it profitable to go around from farm to farm, collect the eggs and deliver them to some assembling point. The huckster becomes a real influence for better or poorer eggs through his personal contact with the producers.

(3. *Country Store.*) The country store is the natural medium of transfer for the things the farmer buys and those he sells. The storekeeper often

finds that if he can attract the eggs the grocery trade will come with them. In some instances, the storekeeper handles the eggs at no profit at all or even at a loss. He frequently exerts no influence for improved quality, and is thus considered by some to be a detriment to the egg industry.

(4. *Shipper.*) In communities where there is an exportable surplus of eggs, the shipper assumes the responsibility of assembling them, locating the market, shipping them, and financing them until he receives his pay. The shipper frequently advertises, makes trips to the markets, and keeps in close touch with general conditions in order to adjust his prices intelligently.

An interesting method of selling by shippers is illustrated by the f. o. b. auction selling of fruits and vegetables. It is an inspiration to sit in a "call" in Chicago, New York, Boston, Philadelphia, Detroit, Pittsburgh, or other important markets, all of which are connected together and with the California shipping points by special wires. The catalogue is wired from the central office a few minutes before the sale starts, describing the cars ready to be shipped, or already rolling. The assembled bidders at each market compete with each other and the groups at all the other markets, the bids coming to each city from all the others the instant they are made. This is efficient distribution and provides an accurate balancing between supply and demand, where only guess work prevailed before.

(5. *Receiver.*) Receivers in the markets may be of the type called wholesale dealers who purchase eggs in wholesale quantities from shippers or from other receivers, or commission merchants who handle eggs for others and make a commission charge for the service. The receiver maintains an acquaintance with country supplies,

¹ Benjamin, Earl W., *Marketing Poultry Products*, John Wiley & Son, Inc., New York, 1923.

keeps the shippers notified of market conditions, handles the shipments when they arrive at the market, and with his direct contact with the local market he tries to dispose of the eggs to the best possible advantage. The receivers usually constitute the principal membership of the city exchanges, and the wholesale quotations are usually based on the prices obtained by them.

Auction companies have largely replaced ordinary receivers of fruits, and this condition is developing in the vegetable trade. Cold storage warehouses and railroads have utilized the auction method of selling eggs for salvaging purposes very successfully for many years, and a few years ago the California co-operative egg producers tried a few cars at auction. However, it was not until the Pacific Egg Producers' auction was inaugurated, that any systematic attempt was made to establish auction selling of eggs, as a means of disposing of current offerings of all grades to the regular daily trade.

Eggs have been regularly sold at auction since November, 1922. This egg auction is operated by the Pacific Egg Producers Co-operative, Inc., of New York, the sales agency owned by three co-operative associations of producers on the Pacific Coast. Catalogues are published each morning describing the lots to be offered, and a sample of each lot is ready two hours before the auction starts. Promptly at the appointed hour the auctioneer begins to call for bids on the various groups in turn; bids may be received on the telephone if the buyer cannot be present. Unless the top bids fall below a minimum fixed by the sellers, the goods are sold to the highest bidder, and he has the choice of taking only ten cases or the entire lot, the auctioneer then continuing on the remainder. During the last season, July, 1923, to

April 14, 1924, they held 195 auctions, and sold 224,500 cases; 5,899 sales tickets were delivered to purchasers, 328 customers purchased on the auction, and the average rate of selling was 1,123 dozens per minute.

A public market place is sometimes used for the initial distribution of a portion of the farm products. The stalls or spaces are usually rented from the municipality and a specialized receiver may occupy the space, or a producer may bring his own produce or some from his neighbors, and function as a receiver.

(6. *Storer.*) The demand from the consumers for a steady supply of eggs has made it necessary for someone to hold eggs from the period of seasonal surplus or temporary market glut to periods of scarcity. This has stimulated the construction of large refrigeration warehouses for the use of the storers. The warehouse owners do not usually own the eggs, but only maintain their refrigeration service, and handle the packages for a fixed charge.

The storer naturally buys the eggs to be stored as cheaply as possible, because eggs "bought right are half sold," and the storer knows by experience that it requires good business judgment to finish the average year with a reasonable year's wages. The storer firms up the market when he buys his eggs and depresses the market when he sells them. His is the "steady" function, very valuable to both the producer and consumer.

(7. *Jobber.*) The jobber makes it his business to supply the retailers with the qualities and quantities needed. He usually maintains a corps of salesmen to call on the retailers at regular intervals, collecting bills and soliciting new business. The jobber handles, repacks, and delivers the eggs, and usually advertises his brands. His business is based on good will and a

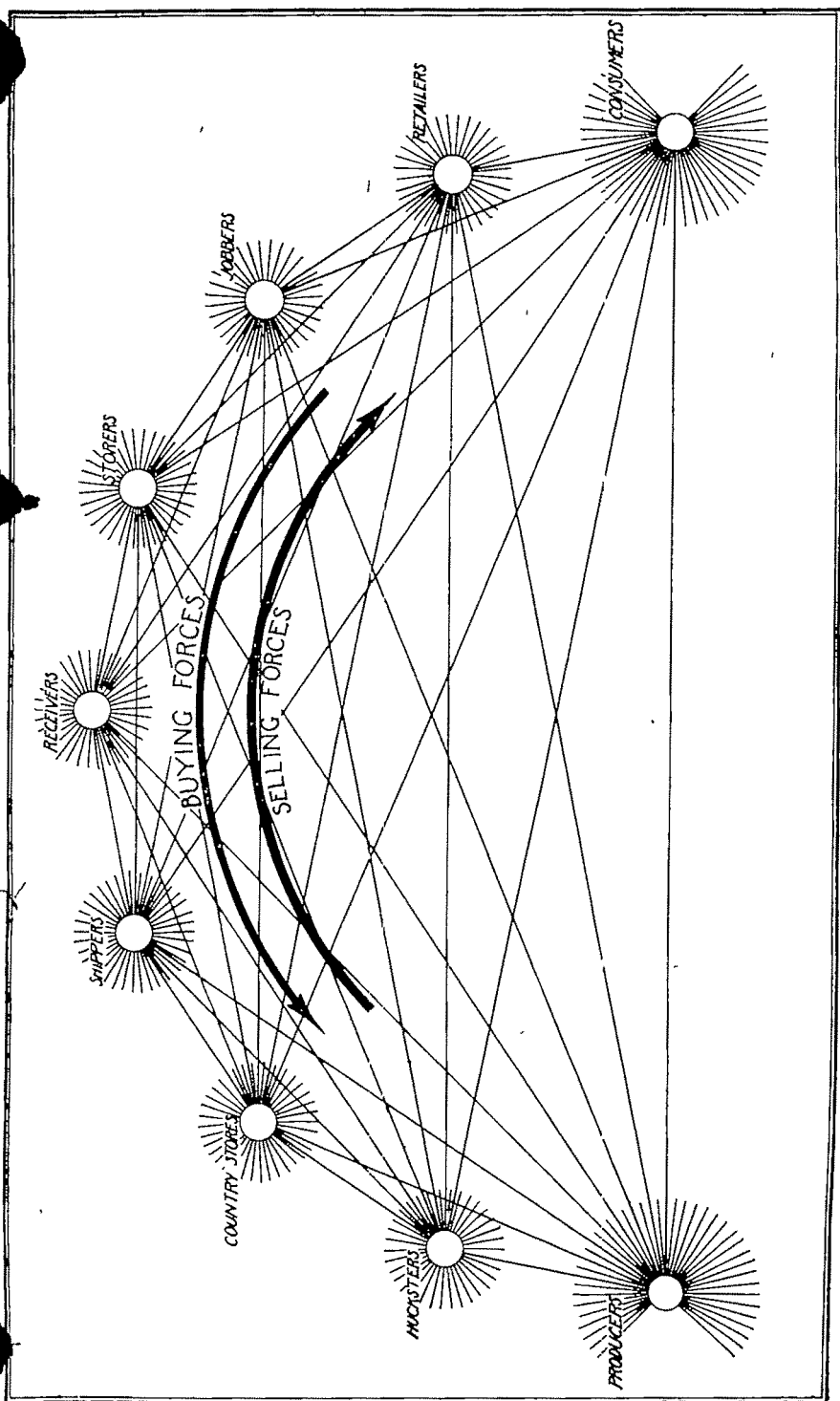


FIG. 1.—INTER-RELATIONSHIP OF EGG DISTRIBUTORS

Each unit distributor has the opportunity to trade with any other as indicated by the radiating lines, only a few of which are here shown as connecting two units, in order to indicate for illustration purposes the two trading parties who happened to make a deal.

At each distribution station the radiating lines indicate a potential auction, the distributor being anxious to sell to the highest bidder and to buy from the lowest offerer.

The relative locations of the distributors as shown in this chart have no geographical or economic significance.

line of customers requiring years to develop.

Hotels and high-class restaurants in the large cities require a distinctive service such as particular qualities, special quick delivery service, and liberal credit. A specialized jobber, the hotel supply house, caters to this trade.

(8. *Retailer.*) The distributing to the consumer is done through a variety of agencies including chain stores, individual stores, general or specialized stores, peddling from wagons, and retail markets along the country roadside. The two most important types, the chain stores and the individual stores, are now engaged in a keen struggle for the consumer's favor, with the chain stores apparently gaining ground because of their economies and ability to clear their stocks rapidly. The final inspection of the eggs and the best opportunity to encourage or discourage egg consumption lies with the retailer.

(9. *Consumer.*) Some housewives can give much less attention to the personal selection of the household food supply than others, depending on their other activities. Many purchase their food from bakers and delicatessen shops, and others eat at restaurants. Telephone ordering, retail deliveries, and small storage spaces in the homes encourage small and frequent purchases. Among the marginal activities of the egg consumers are personal selection of the eggs, quantity purchased, transportation to the home, cash payments, and home cooking.

Those distributors who do not assume ownership of the eggs while performing their market functions include transportation agents, brokers, public auctioneers, and the like.

COMPETITION

We see these specialized distributors as a part of a finished structure. Many

who believe the structure wrong think it is easy to throw it over and start anew, but one must realize that it has been worked out gradually by men expert in their line. These men are struggling for an existence which is dependent upon their success in evolving and operating a plan good enough in comparison with the others to receive patronage. This apparently well-lubricated market machine is really a seething struggle never at rest, always striving for economic improvement. What we see today is far different than what existed yesterday and what will be existing tomorrow.

As noted in Figure I, at each step in the passage of eggs from the producer to the consumer, the prospective buyer consciously or unconsciously throws his whole energy into protecting the consumer by buying the best quality at the lowest price, and investigating all available sources of supply; while in the same way the producer's interests are protected throughout the series of sellers, each striving to obtain the highest possible price for the quality he possesses. No fears or favoritisms are shown; no receiver can handle the eggs passing from the shipper to the jobber just because he is a receiver; he must make himself essential. He must really make it cheaper and more efficient for the shipper and jobber to trade through him. The same is true with all other functional specialists, and in this way our marketing system is maintained as it is today. The owners or managers of businesses are themselves attracted by larger profits or salaries in other industries, and this influence must be constantly counteracted by the economic struggle of industry for efficiency of management.

The free choice of routes at each transfer point during the process of marketing amounts virtually to a suc-

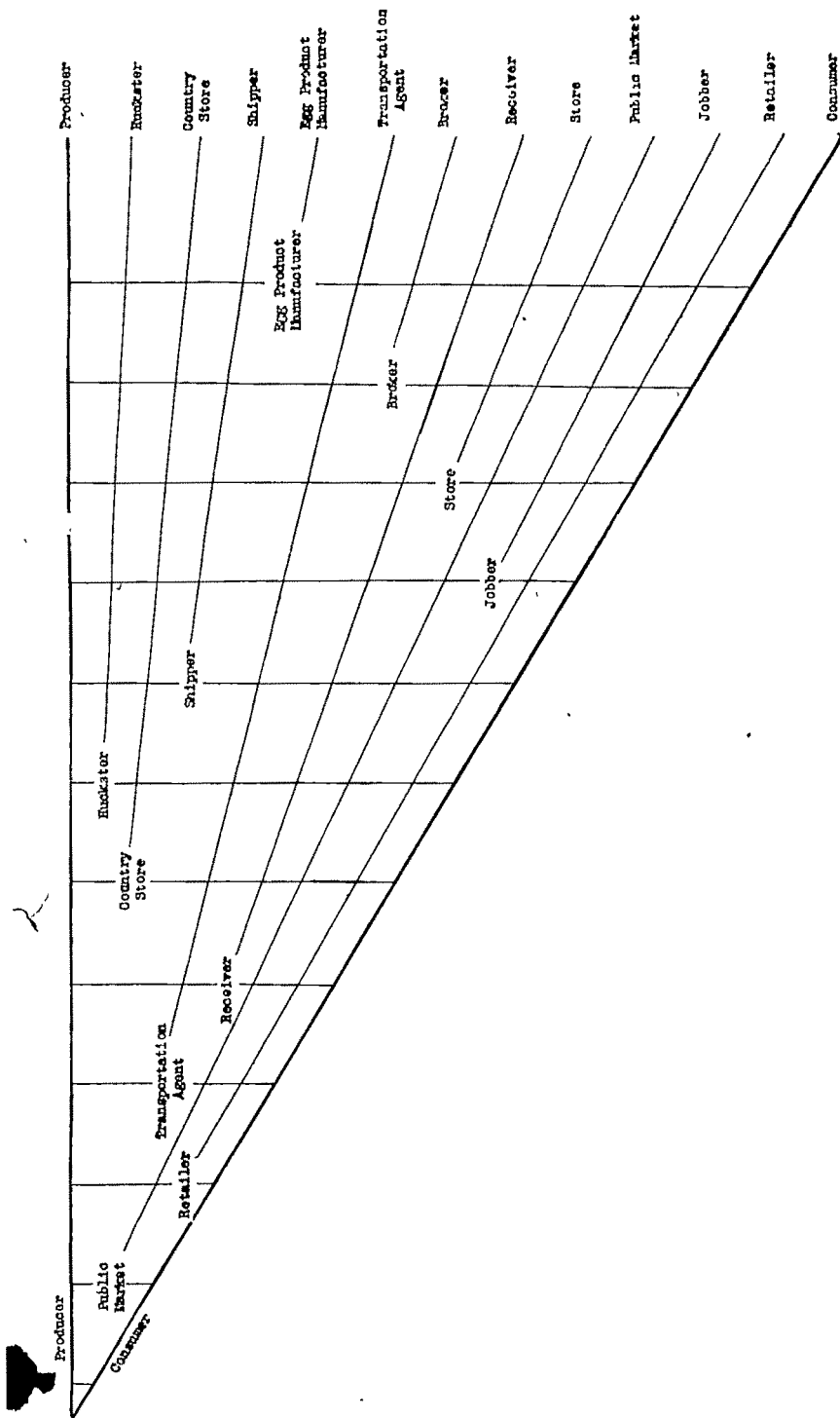


FIG. II.—EVOLUTIONARY DEVELOPMENT OF EGG DISTRIBUTERS

The apparent widening of the gap between the producers and consumers has occurred only at their demand. The producers have insisted on steady markets, prompt payments, reliable customers, and the like; the consumers have demanded such things as a steady supply, better quality, convenience, and confidence in the seller. The producers and consumers have demanded so much that they have been obliged to employ more people to work for them; when the jobs developed, specialized distributors came forward to take their places.

cession of auctions. It is a choice of psychological methods as to whether the seller adopts the "Dutch Auction" method of starting with a high price and reducing until a buyer is found, as is usually done in private selling, or whether he adopts the usual auction method of accumulating bids at increasing prices, finally accepting the highest one.

We usually look at trading as an accomplishment of the seller, but the development of chain stores with huge demands for specific qualities and quantities has in many instances placed the emphasis on the buying, both by the retailer and by the jobbers and receivers. It is evident, as shown in Figure I, that the consumer has eight choices from whom to purchase, and he is continually striving to make the efficiency of his buying as high as possible; similarly the producer has eight choices to whom to sell; the jobber has two choices for selling and six for buying; the shipper has three for buying and five for selling. When observing egg marketing one sees practically every possible combination of traders in operation, successfully, too, and filling their niches in the array of combinations making up our present complete system of distribution.

ADVANCES IN GENERAL EFFICIENCY

Consumers are becoming better educated as to the qualities and uses of eggs, and they are demanding better eggs and better service. These demands are being reflected back along the line from the consumer to the producer as illustrated by the recent movement for general adoption of buying from the producers on a quality basis rather than the old case count basis.

Modern market problems are now being discussed in the newspapers and magazines, class rooms, homes, clubs, and legislatures. Inquiries of various

sorts are being made. The efficiency of all known methods of marketing are questioned and tested, and the conclusions and experimental results are made available to the public.

Governmental and other educational agencies bear the responsibility of discovering the truths in the various demonstrations going on around us all the time, and promulgating them.

Some of the co-operative marketing activities now so popular have originated from necessity; some have originated because some promoter has claimed wonderful results and convinced a group of persons to make the start; others have originated from a false pride in controlling one's products during a greater portion of the market journey, just for the sake of controlling. The "necessity" origin is probably the soundest economic basis for co-operative efforts; efforts which frequently involve the participants in problems outside their own sphere of knowledge and experience. The "necessity" is usually due to the lack of proper functioning by the pre-existing distributors, or to the development of a certain type of agriculture, such as egg production on the Pacific Coast, and which is dependent upon increasing the market outlet sufficiently to absorb the increased supplies. In some such instances, no outside distributor is able to co-operate quite so intimately, and with the same inspiration of confidence as the producers themselves.

Co-operative marketing organizations must stand or fall according to their economic functioning the same as any other distributors. They may furnish information to assist in controlling the amount of production or guide the producer in fitting his quality of production to the needs of the market. Non-co-operative distributors have partially fallen down in this re-

spect, and this has accounted for the present rapid growth of co-operative effort. It is not surprising that a few unwarranted co-operative enterprises may be promoted, but these will soon succumb to the law of survival of the fittest, and the experience gained by the co-operators will not be lost. Co-operatives have as good a right to do business as non-co-operatives, and they will continue to do business until conditions are such that they cannot longer do it more efficiently than it can be done in some other manner. Co-operative marketing is merely a method of organization; the fundamental processes of marketing are not changed, and the costs are not changed, except by the adoption of improved methods.

Co-operative activities such as exchanges, and associations of dealers, are usually formed for educational, insurance, or social purposes, or for the maintenance of trading facilities with appropriate rules governing the same. An interesting development, due to the facilities offered by co-operative efforts, is the increase in the trading in options for future deliveries of eggs in Chicago and New York. The centralization of this trading and the published prices crystallize general opinions as to future values, and cause an adjustment of the prices for present transactions toward the level of these opinions.

SPECIFIC APPLICATIONS OF SCIENTIFIC PRINCIPLES

The outstanding evidences of scientific developments in egg marketing as it is carried on today are the following:

The survival of only the most fit method.

Prices are the expression of values, in terms of money. The prices of eggs are determined by their relative supply and demand.

The supply factor is affected by such

influences as the quantity and quality of the eggs; whether they are in strong or weak hands; handled through one channel or several, competing for the same outlets; whether they must be sold promptly and in irregular quantities or can be regulated to provide an even flow for sale; supply of substitutes appealing to buyers; facilities for holding for customers rather than forcing immediate deliveries.

The demand factor is affected by such influences as rate of absorption by customers; anticipated future demand or supply; whether the brand has an established reputation; ability of buyer to hold supplies for future demands; buyer's credit; confidence of buyer in seller; example of others buying; and whether previous purchases have been profitable or unprofitable.

High prices encourage the marginal producer and seller, and discourage the marginal consumer and buyer, gradually swinging the pendulum back to low prices which encourage the buyer and discourage the seller.

The play of marginal utility in selling eggs is complicated by the fact that each lot is made up of many different qualities of eggs on each of which there are different marginal utilities; and innumerable items of costs must be considered as distributive shares.

It is customary and apparently essential in distributing eggs in a local market to give all customers equal opportunities at the same price, even though the marginal demands of the various buyers are different. When shippers are trading with buyers in widely separated cities the use of selective prices is becoming increasingly difficult due to the modern close inter-relationship of markets. Good-will is so necessary in maintaining a satisfactory business of selling eggs that distributors are very chary of having more than one price on the same goods.

A monopoly in eggs is very difficult to successfully manipulate, even for specific qualities, because there are so many substitutes, and there is danger of quick stoppages of demand through boycotts or the natural loss of marginal buying.

When the supply of eggs is inadequate, the sooner the price is advanced, the lower the ultimate level of price at which the demand will be satisfied. When the supply is in excess, the sooner the price is lowered, the higher the ultimate level of price at which the demand will absorb all offerings.

THE AUCTION—A MODERN METHOD OF SELLING

This article is not for the discussion of any specific method of selling, but it seems so apparent that the auction, in many respects one of the newest methods of distributing eggs, embodies the scientific requirements for good selling, that the writer wishes to mention the most important of these features:

The auction, together with the supplementary work of the operators, fully attains the necessary steps in good salesmanship: (a) attention, (b) interest, (c) desire, (d) conviction, (e) decision and action.

The auction is a big event in the market each day at a specified hour. It is advertised; its prices are vital to the whole trade; people are talking about it; and no buyer could forget it if he tried. These features account for the first two steps, attention and interest.

The auction has a reputation for fair dealing; customers are usually satisfied, representatives of the auction explaining the beneficial features; the prospective buyer is induced to visit it; he inspects the samples and finds them of the usual quality; he sees others inspecting the samples for the purpose of buying; and as the auction selling begins, desire and conviction on the part of the prospect usually develop in quick succession. The prospective customer observes the quick and fair

FIG. III.—RELATIONSHIP OF SPRING AND FALL EGG RECEIPTS

Graph Represents $\frac{\text{Fall Receipts}}{\text{Spring Receipts}}$ at New York City; 1875 to Present Time



Revised from work done by author at Cornell University

The percentages represented in this graph designate the relationships of receipts during March, April, May, and June, to those during October, November, December, and January. One hundred per cent would indicate that as many eggs were received during the fall as during the spring. Note that since 1895, when holding eggs by cold storage was becoming of importance, the percentages have been gradually declining. This means that the eggs are now shipped to the market as fast as they are laid and if there is a surplus, they are held in the storage houses on the markets. Formerly they were held by farmers in ice houses, cellars, salt and bran. The tendency of the curve to rise during recent years may be due to the increasing use of interior markets as storage centers; eggs stored in these interior markets are shipped to New York during the fall and winter.

play of prices up and down, and he finds that he can purchase as few or as many cases as he wishes; and the last aim of salesmanship—decision and action—is almost invariably obtained.

The auction thus plays into the hand of the sales solicitor.

The real duty of the auction is to fix the prices quickly, and accurately. The larger the proportion of the market's total buying power which attends the auction, the more accurate will be the prices. It becomes the rule that a customer on the auction is more valuable than a customer off the auction. The marginality of each customer is quite likely to be reached on the auction if it is popular enough to attract a good proportion of the buyers.

By having the buying power of the market centralized the sellers are able to more accurately determine their own correct price marginality. An auction in the hands of one knowing the facts relative to present and prospective supply and demand, places such a seller in a position to stabilize the market for the manifest benefit of the industry. Reservation prices and direct reservation of supply are frequently employed by the seller to offset a feeling of panic, irregular supplies, or a temporary decline in demand.

No one buyer or seller nor limited group of them can possibly possess the knowledge supplied in a few minutes at an active auction. History is made there, and it is made quickly enough to be of use for further trading.

The auction is very sensitive and the prices indicate any slight change in the relative position of the supply and demand forces.

The publicity of auction prices permits a prompt recognition of wholesale price changes, by the producers, consumers, and all intervening agencies, thus encouraging quick adjustments all along the line.

The fact that personalities are removed from good economics when the prices are fixed has a permanent appeal to most buyers. There are no favoritisms at auction.

The auction is a device for price fixing, a machine of economics. The writer believes that the more general adoption of the auction plan of selling will be recognized as one of the achievements of science for marketing.

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The Contribution of the Association of National Advertisers to Better Present Business Practices

By JOHN SULLIVAN
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WHAT ARE PRESENT MARKETING PRACTICES?

ACTUALLY there are comparatively few industrial companies in which there can be said to be *marketing* practices. There are advertising methods, selling methods; as a rule—I am speaking of large and more advanced concerns in commercial operations—there is pretty consistent and well-defined combined and co-ordinated advertising-selling practice. The imaginary line between Advertising Land and the Kingdom of Sales has been, is being, crossed so often that it is somewhat difficult to imagine that it was ever imagined. Go into an advertising executives' convention, and the men will be found discussing sales and advertising. Go into a convention of sales executives and the discussions are concerning advertising and sales.

CO-ORDINATION OF ADVERTISING AND SALES

Twelve, ten, eight years ago, a topic of discussion in our general meetings was co-ordination of advertising and sales departments. About six years ago, while a group of A. N. A. men were engaged in outlining an annual meeting program, a suggestion was made that we again consider sales and advertising co-ordination. "Pshaw!" exclaimed a dynamic and clear-thinking sales manager, "there's nothing to discuss; the way to co-ordinate is to co-ordinate!" If any man were to suggest the subject today, the suggestion would be received with charitable

smiles—and deprecatory silence. Men who formerly worked only in the dimension of *similarities* have learned to work also, and co-ordinately, in the dimension of *differences* in markets and marketing practice.

That is a very great advance, and constitutes one of the principal contributions of the A. N. A. in the evolution of scientific marketing practice.

MARKETING PRACTICE

But genuine marketing practice is not only co-ordination of sales and advertising; it is something more. All the operations of a factory enter into, and constitute, marketing. This is but imperfectly understood even now in American business; finance and production monopolize to too great an extent the administrative capacity of industrial captains, instead of being regarded as merely functions, or departments, of *business*, another name for which is marketing; because, essentially speaking, a factory does not exist for production, but for marketing the goods produced; goods have no value whatever unless there is a market for them and unless they can be sold to that market, and sold economically and effectively.

CREATING MARKETING PERSONNEL

It may seem a trite and unnecessary thing to say, but business is men; not machines, not dollar bills, not transportation, but men. It is one of those obvious things so frequently overlooked because it is obvious. Perhaps it is because the chiefs of big business have

been so almost exclusively occupied with machines and with dollar bills that the *sine qua non* of successful marketing, viz., men, has been overlooked, discouraged; repressed. That this has consistently occurred frequently shows in the conversation of sales managers and advertising managers.

Knowing intimately this situation, and that it could be changed only by time and the inevitable domination of knowledge and ability, the A. N. A. has, for fourteen years, been the principal means in the United States by which men serving in the marketing departments of industrial concerns have attained and acquired marketing consciousness and ability through marketing knowledge. Since the foundation of the Association, and especially during the past nine years, the members have individually asked for, and have been given, many thousands of items of information each year covering every phase of advertising and selling; data relating to channels of distribution; marketing investigation; every possible activity of, or connected with, salesmen; methods of selling and of advertising; of sales promotion; trade-marks; legislation bearing upon marketing; mediums; etc., etc.

To give something approaching an adequate idea of the individual data service rendered by the Association would necessitate occupying at least twenty-five 8½" x 11" pages. Has a member company wanted to know whether or not to invest in automobiles for its salesmen; the Association has been able to give detailed and first-hand information for the member's guidance. Or how to minimize waste in the use of dealer helps; the member has received a volume of material covering the experiences of many companies. Did a company contemplate reorganizing its marketing departments; or have any doubt on a matter of trade-

marking; or wish a list of publications revised to secure maximum coverage of a marketing territory at minimum cost; or wonder what state laws it might stumble into in opening up a new sales territory; or be considering the employment of exclusive agents; or wish a certain proposition or scheme investigated; or wish material for the conduct of a salesmen's convention, for the training of salesmen; the demand has been immediately met or covered as quickly as possible.

It has been exceedingly interesting to stand at the center of the circle of the A. N. A., so to speak, and observe the inquiries becoming increasingly more profound, less of a subjective and more of an objective character; to see less and less interest shown in advertising technique and the growth of a practically dominating interest in all that marketing means.

So here is another outstanding contribution of the A. N. A. to the improvement of business practices,—the creation of that without which competent marketing must be impossible, viz., competent marketing personnel.

COMMERCIAL RESEARCH

Commercial research is becoming as common an operation as technical production research. Commercial companies have, through bitter experience, learned to look before they leap. Research is, as a rule, thought of only in its "blanket" aspect,—a state, territorial or national market to be investigated by crews of field men in accordance with an elaborate plan. The A. N. A. frequently investigates important matters over a broad territory. For example, it is now investigating duplication of magazine circulation, parallel, of course, to a possible investigation of whether too many salesmen are operating in a certain territory or whether there are too many retailers.

Diminishing returns from publication advertising are frequently reported, and both inquiries and sales are, in many cases, becoming prohibitively expensive. Another matter receiving research attention is the wide spread that very frequently obtains between local and foreign out-of-town rates. The Association has also examined into and issued reports upon such matters as Ways of Selling Salesmen on the Company's Advertising and Getting Them to Use It; Dealer Cooperation; Practices of A. N. A. Companies; Sales Manuals; The Use of Automobiles by Salesmen; Reports on Export Advertising and Merchandising; Reports on Publications; and a great number of reports on many other subjects, a list of which would fill many pages of *The Annals*.

Mention should be made here of the famous Research Reports of twelve years ago: Experiments on the amount of white space valuable for attention or isolation value; Report on experiments as to the average value of advertisements in advertising sections of different sizes; Size and frequency of advertising; Preferred position in standard magazines; Do different intervals of time between the publications of advertisements affect their individual efficiency? Attention value of advertisements in various positions; Actual returns from advertising and results obtained by experiment; To what extent do individuals read copy in advertisements? Habits of passengers in street cars, elevated and subway trains, as regards the reading of advertising cards.

A vast volume of water has run under commercial bridges since these research bulletins were issued; the water was changed in color as its flow has worn the channel nearer and nearer to the bedrock of marketing practice; but, whenever, as during part of the last

four years, confusion of changing conditions has forced men to reconsider first principles or basic elements, the value of the research work of the A. N. A. twelve years ago has been demonstrated practically.

But all research is by no means of the "blanket" variety. A large proportion of A. N. A. office research is of that kind which gradually builds up data upon data until everything worth knowing on the subject has been gathered; the kind of research in which "every little bit, added to what you've got, makes a little bit more"; similar to the well-known British political method of adding precedent to precedent until ultimately an entire body of practice exists.

MARKS OF APPROVAL

Let me give an example of this kind of investigation: Thirteen years ago a company of competent advertising men, assembled in Boston, seriously discussed the licensing to manufacturers of a mark of approval to be used by those manufacturers on their goods, their packages, their advertising literature, in advertisements, etc. The mark was to be an assurance to the public that the licensing organization approved of the manufacturer, his product, his methods of business, and so forth.

Nothing but discussion happened, and the "crisis"—for the manufacturer—passed.

The idea again cropped out in the formation of an association in which the use of an emblem was permitted—after payment of dues—by firms who, during their business history, had practised honor, rendered service, given quality, and thereby attained strength; all these business virtues being acquired before the firm could have the emblem of approval pinned on its breast by the association.

This instance of the employment of a mark of approval was the subject of plentiful discussion.

In 1916 the idea was revived by a gentleman who appears to have been one of the aforementioned Boston company. A brand new mark was displayed at a specially called—and gratis—luncheon, and those present were asked in turn why endorsement of the scheme should not be given. One man said: “Mr. ———, suppose you had been in business ten, twenty, fifty years, and had built your business on the basis of a trade-mark that had become a symbol of fair dealing, quality, integrity, uprightness. You would have paid by consistent ethical conduct, to say nothing of large sums of money, for the approval of your public, evinced by your having a stable and growing market for your goods. Under such circumstances, how would you regard a proposal that you let some association examine the quality of your goods (basis for examination undefined), give them and you its O. K., and allow you to pay for that association’s mark of approval, said mark to be used henceforth in competition with your own trade-mark, and to tell your public what they already know—that you are fit to do business with them?”

Quite evidently we were beginning to get down to definitions on the subject.

Then along came the so-called national trade-mark; to be not merely a mark of origin, but to be licensed to any American exporter who promised to be good, to sell goods of a *certain* standard of excellence; although its promoter, the Chief of the United States Bureau of Foreign and Domestic Commerce, said the mark could not possibly be a mark to denote quality.

Finally, about three years ago, a foreign gentleman domiciled in the United States promulgated the idea of

a mark of approval—the Potentia Seal—to obtain which manufacturers would be required to put up a bond, the amount of which the Potentia Corporation would have the right to cause to be paid to anyone who should establish that misrepresentation had been practised by the grantee of the Seal. A portion of the proceeds from the licenses was to be used for the organization and cohesion of the “moral forces” of the world!

Here, briefly, is a thirteen-year history of attempts to materialize an idea which is an economic fallacy, but was not, in every case, recognized as such. Each case was investigated and reported upon by the A. N. A. And finally, all the evidence being in, it was possible to arrive at definite and irrefutable conclusions; and, should the idea ever be resurrected, as undoubtedly it will be, it will speedily be buried again by producing the mass of evidence that the Association has in its files.

REDUCTION OF COST OF DISTRIBUTION

The essential aim of all the work of the A. N. A. is reduction of the cost of distribution. This aim has always been kept in mind in all that the Association has undertaken. That is what has made its program during fourteen years a consistent one. An association can easily be tempted to get into side roads unless its main highway is clearly defined.

SIMPLIFICATION

When, therefore, the question of simplification of paper sizes came to the front nearly three years ago, the A. N. A. knew that it must take a leading part in solving it; on its solution depended reduction of the cost of printing. To a very great extent, printing costs are at a high level because of the immense variety of paper items manu-

factured, stocked, and used in printing. There are even now paper mills making many different sheet sizes of paper, and also turning out comparatively small lots of paper because of the multiplication of private brands, of which there exist about 10,000 as against about 600 mill brands. Of paper items, paper merchants are carrying in stock 5,000 to 12,000. Printers are overequipped with machinery. Their turnovers average one and three-quarters annually, and their net profits $3\frac{1}{2}$ per cent.

With such conditions how can lower prices be possible? The paper manufacturing, merchandising, and printing businesses have been, and still are, bedevilled by too many varieties, by complexity, making operation on a turn-over basis impossible.

The A. N. A. determined upon taking the initiative to effect simplification; and, finding afterwards that the U. S. Bureau of Standards was also preparing to do similar work, joined with the Bureau in common with other and interested associations. After a vast amount of research and survey work, it was found that five sizes of book paper were sufficient for all general printing purposes, for lithography, and for book publishing, as well as for magazines and directories.

The investigation included the sending out of more than 15,000 questionnaires to the members of eight interested national associations; fourteen different surveys of printed literature representing over 25,000 individual printing jobs. It was actually found that if only a portion of the printed matter examined were changed in dimensions $\frac{1}{4}$ " to $\frac{1}{2}$ ", practically all of it could be cut from four of the recommended sheet sizes of book paper!

It has further been brought out that of the printed literature used by commercial concerns, 10 per cent to 35 per cent is cut to waste from the sheet

sizes used; and the waste of paper varies from 15 per cent to 35 per cent.

In instances in which there has been a condition diametrically opposite to one of simplification, it has been found possible to reduce the paper cost 40 per cent and the printing cost 17 per cent.

The test of effecting simplification is, at least, a five-year one. But we are confident that not only will users of printed matter benefit 20 per cent to 25 per cent in prices, but paper manufacturers, paper merchants, and printers will make large profits and have far more stability than at present. Here is a bettering of business practices that affects probably an annual cost to business of, at least, \$450,000,000. It even affects labor conditions in the paper mills, since, with manufacturing concentrated upon a few standard sizes, in slack times the mills can run for stock, confident of subsequent demand, thus keeping their men employed and contented.

There are men intimately acquainted with conditions in the paper and printing industries who assert that unless the A. N. A. had accepted the virtual leadership in the movement for simplification, the movement would have languished and probably failed to reach the point it has.

Why is this simplification necessary? Because the cost of distribution in the United States must be reduced. We can no longer hope for the consistent reductions in cost of production that characterized manufacturing until a few years ago. Here and there, as, for instance, in paper manufacturing, or as the result of an important discovery in a laboratory, reductions will be effected; but these incidental savings will not affect the entire volume of production broadly; indeed, we may rather expect a general increase in production costs.

Accordingly, unless we want to lose our markets, domestic as well as for-

eign, we must reduce distribution costs. All methods of marketing, all channels of marketing, must be examined and re-examined. The distinct tendency is toward simplification and toward direct action and control—simplification of methods and of instruments, and a fundamental appreciation of the fact that marketing goods by proxy cannot be accompanied by the requisite economy and effectiveness.

WHEN A. N. A. MEN FOREGATHER

Someone has said recently that the second largest industry in the United States is *convening*, the first being bootlegging. However that may be, convening has been an important means by which the A. N. A. has been able to improve business practices. Twice each year since it was founded the Association has assembled for three complete days of business sessions, and frequently discussions have gone on until almost midnight.

A review of past meeting programs will be enlightening as showing how gradually an advertising mentality largely subjective has grown and broadened into one that is decidedly objective. It is obvious that to the degree that selling mentality is subjective or objective there will be less or greater grasp of objective realities in markets and, accordingly, slow or rapid improvement in marketing methods.

In 1911, the Association discussed what may be regarded as advertising subjects exclusively; for example, special editions, programs and semi-charitable advertising solicitation, agency relations, postal affairs, circulation and rates, house-to-house distribution.

In 1912, these matters again were given attention and there were added improper advertising, window displays, research work, export advertising, transportation of advertising matter, advertising department systems, dealer

co-operation, resale prices; showing clearly that the relative character of advertising to general business activity was being recognized.

In 1913, there was held a conference with the National Association of Retail Merchants, and an investigation was made as to "The Efficiency of the Distribution Methods of Manufacturers Selling through Retail Distributing Factors."

In the following year, direct advertising received particular attention, and the connection of factory production with marketing of production was a topic of close consideration. At the same time, inquiries received from members at the headquarters office began to evince a distinct selling or marketing instead of an exclusively advertising character.

Throughout 1915, such inquiries were in the majority, and in the general meetings there was marked zest in discussing the exchange of information and experiences upon: Educating the Jobbers' Salesmen; Contests for Salesmen; Educating and Stimulating Retail Sales Clerks; Exclusive Agencies; Stimulating Salesmen; Remunerating Salesmen; Securing Co-operation of Salesmen; Marketing Products among Foreign-Language Populations in United States; Getting the Dealer to Handle the More Profitable Numbers in Lines of Products.

The 1916 spring meeting program was compiled from a questionnaire as to subjects for discussion prepared by members. Among the general classifications of the program were: Dealer Service and Dealer and Jobber Co-operation and How to Secure It; Training and Stimulation of Salesmen; Raw Material Prices; Co-ordination of Advertising and Sales Departments; the Howard Bill against Misbranding; Trade Associations; Open Price Associations; One Price Policy to Both Big

and Small Dealers; the Employment of the Salesman as the Firm's Missionary.

The annual meeting of the same year sought to clear away a great deal of misunderstanding about publishers' circulation methods, and succeeded. When that was done we went ahead with a great program of problems involved in Selling; Relations with the Dealer; Export Marketing. And for the first time was introduced The Factory; Employees' Social Clubs, Benefit Associations, Training and Education; "Safety First" Methods. Here was the advertising man appreciating that every factory department is a sales department.

Inevitably the meetings in 1917 were occupied with business and the war, and in this connection discussions on Possible Readjustments in Business following the Termination of the War marked a big jump in A. N. A. business consciousness. Investigating the Market also received an unusual amount of attention.

And then at the Semi-Annual Meeting of 1918, the program included: Attitude of the Government towards Business in General and Advertising in Particular—Government Regulations Affecting Advertising and Merchandising Policies; Advertising When Oversold; How Much Does Advertising Affect Value of the Trade-Mark, with Special Reference to the Excess Profits Tax? How Can Present Shipping Conditions Be Remedied in so far as They Militate against Effectiveness of Advertising?

The program for the Annual Meeting of 1918 was a reconstruction program. In the preamble to the program details is the following:

In the past the departments of an industrial corporation may have had their strict limits, and have tended towards narrow specialization. Where will a continuance of narrow specialization place us in the fu-

ture? As a result of war conditions, markets have disappeared, or have been narrowed, or have expanded—prospectively. Outlets have changed in character and are changing. By and large, manufacturing capacity has increased and is increasing. How do we know that the distribution methods of yesterday will serve the needs, and under the conditions, of tomorrow? Are we not being forced to overhaul, to co-ordinate and to readapt all our machinery of distribution?

So the program was an attempt to tie together all departments as selling or marketing departments, and there was presented and discussed: The Place and Function of the Advertising and Sales Departments in the General Organization; The Product and the Advertising and Sales Departments; The Advertising and Sales Departments and the Traffic Department; and Operation of the Marketing Departments.

Programs of meetings in 1919 were of a similar objective character and further overhauled the machinery and the technique of advertising and selling in their relation to reconstruction conditions.

Similar work went on throughout 1920, as is indicated by the following subjects: The Why and Wherefore of the Present Business Situation and the Way Out; Facts vs. Guess Work in Marketing; Using Salesmen to Get Facts; The Questionnaire That Is and Isn't; Neglected Fields in Branch Office Quotas.

In the meetings of 1921, topics were: Fitting Advertising into Marketing Plans to Better Advantage—in the Use of Publications, at the Point of Sale, in Direct Advertising, in Outdoor Advertising, through Salesmen, by Means of Advertising Agencies.

Other topics were: Where Are We Headed for in Marketing Costs? The Public Sees the Business through the Marketing Departments.

The motif of one of the 1922 meetings was "The Market—The Method—The Machine," and some topics presented and discussed were: Basing Plans on Known Facts; The Way to Find Markets; The Law of Mental Sale, etc.

The annual meeting of the same year dealt with the following matters: Are There Too Many Retailers?; National Advertising—Connecting the Consumer with the Distributor; Selling the Consumer Direct; Distribution of Manufactured Products; Analyzing Distribution Costs; Modernizing our Trade-Mark Laws.

For 1923: Offsetting the High Cost of Advertising in Publications by Better Advertising and Sales Methods; The Development of Marketing Administration; The Salesman and the Advertising; Direct Mail Advertising in Sales Promotion.

Nineteen twenty-four: Present Economic Factors Affecting Business; Distribution of Marketing Personnel; Selling Advertising Plans to Salesmen; The Dealer and the National Advertiser; The Fundamentals of a Correct Sales Policy; The Cost of Distribution and Misfit Salesmen; The Relation of Research to Marketing Methods; Better Relations between National Advertisers and Retailers; Helping the Dealer to Help Himself.

Behind the A. N. A.'s activities is economic force, inescapable economic law, a development in marketing consciousness that dictates these activities. That development is inexorable; its demands will not be denied; all we can do is to determine to work with and not against them. The direction of all our activities is toward reduction of costs of distribution through unification, direct control, simplification.

What the American Association of Advertising Agencies Does to Make Advertising Scientifically More Effective

By STANLEY RESOR

President, American Association of Advertising Agencies

IT is a rare shopkeeper in these days who makes all the things he sells. Occasionally we find a baker, milliner, confectioner or a cigar dealer who manufactures on a small scale for his own trade, but these are the exception. The great mass of retailers carry articles in stock which are made by others by processes and of ingredients concerning which they have no real knowledge.

This situation came into existence only a relatively short time ago. There was a time when the word "shoemaker" connoted a maker and not a repairer of shoes. The shoemaker selected and bought his materials and completed all the processes of shoemaking himself, with the expert knowledge of a craftsman. He could speak from experience regarding materials and workmanship when inquiries were raised by intending buyers. His trade interest extended beyond the immediate profit from a sale; his standing as a craftsman was always at stake. His customers were known to him personally, and they had to come to his store to obtain goods of his make. The number of types or styles he sold was small and their distribution was limited.

PAST AND PRESENT CONDITIONS

The invention of labor-saving machinery, the rise of the factory system, and the development of means of rapid communication and transportation thinned the ranks of the craftsman-retailer almost to the point of extinction.

The functions of manufacturer and

distributor have become more sharply defined. Large establishments produce manufactured articles so efficiently with the use of machines and scientific management that prices can be reduced beyond the ability of the craftsman to compete.

Manufacturing on a large scale, by efficient methods combined with ease and cheapness of transportation and communication, has enabled producers to extend their markets over wider and wider territories, curtailing the activities first, of the retailer-manufacturer, and next of the local small scale manufacturer.

This change is reflected in the statistics of manufacturers. The figures show that in many lines the number of manufacturing establishments is gradually diminishing. Consolidations take place and the growth of the stronger units makes it less attractive for new units to enter the field unless they are equally well set up.

This smaller number of manufacturers doing a far larger average business results in a general distribution of a limited number of better brands. From these standard qualities and brands, the consumer may now select the product exactly suited to his needs and at a price at which competition makes it sure that he will find good value. You may go into drug stores or grocery stores from one end of the United States to the other and find substantially the same brands of merchandise on sale. Wherever you go, you may obtain your favorite tire or razor.

Contrast this choice with the former selection limited to the single product of the old line craftsman-retailer who produced well or poorly according to his individual ability.

The energy which the retailer formerly divided between distribution and production, now is concentrated in specialization as a distributor. As the shopkeeper has become a distributor for the manufacturer, a change has taken place in his stock. New inventions continually appearing, which fill a need or contribute to the ease of life that modern purchasing power can afford, have added to the list of articles he profitably can sell, so that today in place of a single item, which he made and sold, he now sells many, in some instances thousands of different items.

Motor cars, phonographs, safety razors, fountain pens, modern plumbing, electric irons, vacuum cleaners, cameras, and radios show the variety of new objects which have taken their place in the stock of various types of dealers. The average grocer carries from 1,500 to 2,000 items; the average drug store from 5,000 to 10,000; the average hardware store from 6,000 to 12,000. The characteristic modern retailer is one who in selling diverse lines acts merely as a distributor, having no part in the production of the commodities he sells.

CATERING TO CONSUMER-MANUFACTURER NEEDS

In the type of store where the number of items carried runs into the thousands, the dealer cannot be expected to know the relative advantages of so many items. Had he the information available, still he would find it unprofitable to make an extended explanation of the merits of each, because of the small profit per item. His profit now must come from a rapid turnover, from many small sales in a day. At several

busy drug stores in New York the clerks were timed recently during the rush hours and found to make thirty-two sales an hour. With less than two minutes for a sale, obviously the clerk is limited to supplying the customer's needs. This means that the customer must know in advance *what* he needs and must *ask for it*.

How is he to ask for it? Where and how is the consumer-customer to learn what article and what make of it best suits his needs? Who is to provide him with authoritative information? As before, the maker of the commodity is the one authority in a position to know and to explain his product. He is in possession of the facts; the article now bears his name; his reputation is at stake; he must do the selling.

The economies resulting from specialization have split the original craftsman-retailer into two, setting up in his place the manufacturer, producing on a large scale, on the one hand, and the retailer, distributing many commodities, on the other. The producer is still the seller but today he is a manufacturer instead of a retailer.

Fortunately the need of the consumer to be sold and the need of the manufacturer to sell are both served by the same effort. The consumer on the one hand today cannot afford by trial and error to become a self-experienced judge of all the articles he uses. A lifetime and a fortune would be spent before he got half way through his list and then values would have so changed that he would have to start afresh. He must buy by name and reputation. In a brilliant pamphlet entitled *The Backward Art of Spending Money*, Dr. Wesley C. Mitchell points out the problems of the housewife as purchaser for the family. She has to buy, he says, a greater variety of different items than any single purchasing agent ever was expected to buy—everything from stoves

and clothing, to food, medicines, amusements, and education.

The manufacturer of consumers' goods, on the other hand, must keep his factory going by maintaining a wide distribution and a continuous sale. The consumer is his court of last resort.

POWER OF ADVERTISING

Yet the consumer is numbered by the millions, and is spread from coast to coast. But he *must* be reached, interested, and informed.

This is the work that advertising does. Advertising is large-scale selling to command markets for large-scale manufacturing.

The economies of large-scale manufacturing are apparent. What—if any—are the economies of large-scale selling?

To the consumer, it quickly supplies necessary information authoritatively about good merchandise. It is insurance of good value, for if the article is not good, it cannot be advertised successfully. To be advertised it must be identifiable, and if identifiable it can be avoided, if it is not good. The consumer need never buy it again. Advertising insures this value at a fair price for if the price is high, competition will soon force it down or take the market from the article, as large-scale markets are in too great demand to be held unchallenged.

To the manufacturer, it makes possible still larger-scale-selling, frequently resulting in further economics. It makes for permanence with its resulting avoidance of loss and it makes for stability with its advantages to both capital and labor. The Proctor and Gamble Company's recent announcement of a guaranty of forty-eight weeks' continuous work to all of its employes, is a striking illustration of the stability which advertising has made possible.

Two comparisons showing the economies within the method itself are interesting. To reach a single person with a letter under second-class postage, cost of paper, envelope, labor, etc., together with the stamp, amounts to three cents. To reach ten million people in this way once a month for a year, therefore would cost \$3,600,000. For about one-eighth of this amount, an equal number of families can be reached every month for a year with full pages in the magazines, and these magazines are of a character that are read on the average by more than one, and probably three persons, in a home. At the same time the advertising carried by the magazine is making it possible to buy, for instance, for five cents, the *Saturday Evening Post*, which is said to cost twenty cents a copy to produce; and to buy newspapers for three cents which would otherwise cost the reader eight or ten cents.

To leave a pamphlet at every house in Cleveland, calling door to door, would cost approximately twelve thousand dollars. For this same amount a manufacturer can buy a full page once a week for seven weeks in each of the two leading newspapers of Cleveland.

THE HOW AND WHAT IN ADVERTISING

The work of informing millions of prospective customers by means of the printed word presents quite different problems from that of explaining the advantages of an article to a single customer face to face in a retail store. A possible sale to millions is at stake. Every detail involved becomes a matter of genuine importance. This importance is further accentuated by the fact that the public cannot be informed by a single announcement. Understanding of a commodity and confidence in it must be built. An entire program is involved. Each successive message must reiterate the main thought of the

message which went before and at the same time must add its own contribution toward building the full picture of the product in the public mind. This means, of course, that a very clear understanding of all of the conditions faced must be arrived at before any of the work is begun. A definite objective must be set and then each phase of the work planned in detail in advance.

In the solution of this problem, specialization again determines the lines along which developments in advertising work have taken their course.

Advertising agencies originally developed to sell space in magazines, newspapers, farm, and religious papers and to handle the work incidental to the use of that space, the forwarding of plates, etc. It was inevitable that in the effort to make profitable the space they sold to the advertiser, the agencies should begin to study not only the quantity and quality of the circulation, but the character of these publications as it affected the advertiser's problems. The next step naturally was the study of the product, the conditions it had to meet in order to sell, its distribution, price, competition; the location and extent of its market and finally the study of the message itself.

With a full knowledge of all of these factors, so effective did space become when used intelligently that insuring the proper *use* of space soon became the chief function of the advertising agency and the *purchase* of space a corollary in the execution of this work.

The establishing of the necessary facts is not a simple problem.

What is it that the manufacturer is trying to sell? To know this it is necessary to know not only the article itself and its advantages, but all of the articles with which it is to compete; their advantages in price, quality, and reputation. What are the resistances to be overcome in selling the article?

Are they due to lack of knowledge, inertia, habit, price, style? Or does some positive feeling on the part of the consumer against the product itself or its kind stand in the way? The dealer's profit and attitude must of course be known.

To whom is the article sold?

To what class or classes of the 112,000,000 people is it to be sold? To people of what environment and of what income? To men or women or both? If the woman does not actually buy it, is she a factor in its choice? If the man does not, is he?

Where is it sold? Where do the people who use it live? In what section of the country—in cities, small town or on the farm?

In what seasons of the year is it sold? Are there any periods of heavier sale?

When these facts are known, then comes the important problem—*how* is it to be sold?

How is the consumer to be interested in it? To the consumer the article, whatever it may be, is of interest only as it may be the means of satisfying some need. He is interested not in anyone's product but in his own needs. How can his world be penetrated and he be shown that the article in question is of real interest to him?

Not to "rationalize," which Mr. James Harvey Robinson describes as the giving of plausible reasons when you do not know the real reason, but to establish the real answers to these questions and the many more which arise from them, calls for a broad and intensive study. It requires a thorough grasp of the business situation, the getting of complete evidence with great care to insure its being impartial (this often means the traveling of many states, the interviewing of hundreds of dealers and thousands of consumers, house to house in many instances), a

wide knowledge of markets and how to reach them, and then the ability to present the commodity from the point of view of the consumer's needs and interests. Then follows the actual writing and illustrating of the advertisements and the getting them into physical form in the shape of engravings and electrotypes, ready for the publications; the negotiations and purchase of space, the forwarding of the plates to the publishers and finally the checking, auditing, and billing of the advertisements as they appear, and the payment for the space.

QUALIFYING FOR ADVERTISING FIELD

Years of training and experience are necessary to do this work intelligently. It covers many highly specialized fields of work.

To qualify for responsible work in the better agencies it is necessary to have had experience in every phase of the work done within the agency, which includes six months' or a year's actual selling experience as a member of the sales staff of one or more of the agency's clients. The preparation for advertising work now takes as much time and study as the preparation for medicine or law. One agency includes on its staff one hundred and twelve college graduates, five of whom hold degrees as doctors of philosophy.

The term, "advertising agency," just as the word, "hotel," is used without restriction. Agencies vary, therefore, all the way from individuals with little or no training or experience to organizations of from three to four hundred people, comparing favorably in personnel with the best of legal or industrial organizations. Of the twelve hundred listed agencies, probably a thousand are individuals doing local advertising for the local merchant. It is estimated that more than eighty per cent of all national advertising (by na-

tional is meant advertising other than that of local stores) is done by members of the American Association of Advertising Agencies. The Association has one hundred and thirty-five members.

WORK OF THE ASSOCIATION

The purpose of the Association and the reason it was formed are stated best in its own constitution:

To establish a better understanding and appreciation on the part of the business and financial world as a whole, of the usefulness and proper scope of advertising in modern business.

To establish a full realization of the proper and necessary functions of the advertising agency and of its beneficial relations with advertisers and advertising media.

To promote by closer personal contact a fuller interchange of ideas, thereby obtaining a clearer understanding of the problems of our profession to the end that by greater efficiency, we can better serve the interests of the public.

To define and promulgate standards of agency recognition by which applicants for membership in this Association may be fairly and accurately judged as to integrity, business experience, advertising ability, financial responsibility, and agency organization.

To arrive at a mutual understanding of what constitutes standard agency practice and to establish a central advisory body to aid in bringing the practice of all members of this Association up to the accepted standard.

To insure such co-operation as will promote excellence of service; to secure the benefits of a free discussion on cost systems with a view to giving an ever increasing quality and quantity of service without unduly increasing our cost of operation; to bring out into the open full and free discussion of trade conditions, volume and needs of the trade, and to develop, for the benefit of all concerned, sound commercial conditions throughout the country in the hope that the possession of accurate information with respect to the conduct of business, and actual trade conditions relating thereto, will benefit the advertising agency business as a whole, benefit business in general and the public at large.

As a result of the efforts of the Association together with the co-operation of the publishers, very definite savings have been effected in both time and money in the seven years since the Association was formed. By simplifying and standardizing the necessary forms for transacting business between the agency and the publisher, a great deal of time has been freed for constructive work that before was taken up in unproductive clerical labor. Chief among these improvements in forms are what are technically known as the standard rate card, now used by practically all publishers, and the standard order blank, now used by the agencies. - Before the Association took the matter up there was such a variety in the sizes of both the pages and the columns of the various publications that large sums had to be expended yearly simply to alter the sizes of the advertisements to fit these different spaces. Both page and column sizes have now been generally standardized. The yearly saving is estimated at between two and three million dollars. By co-operation with the county weekly newspapers, arrangements have been perfected throughout large sections of the country by which mats can be used instead of electrotypes, which has resulted in a great saving. Greatly improved results are being secured by standardization in the use of inks, especially in color work.

The perfecting and simplifying of the physical and technical sides of the work naturally come first. Such progress has been made along these lines that plans for research, which have been under consideration, were adopted at the last meeting of the Executive Board of the Association, and the work will be begun by fall. Quantitative analyses of the circulation of practically all publications are available in great detail. One of the first studies to be taken up by the Association in its new program, will be *qualitative* analysis and a study to throw more light on the duplication of circulation. Surveys of city and outside trading areas to secure a further knowledge of relative incomes as indices of markets will be made as soon as possible.

These studies will take months, many of them years. It is hoped that they will be productive in three ways: first, that they will establish some positive facts of value; second, that the united study of non-competitive problems common to the entire industry, the time which otherwise each agency separately would have to devote to these problems will be saved for the study of specific problems affecting specific commodities; and third, that work of this kind conducted by the Association will do something to make more general a studious approach to advertising problems that can be solved only by intensive study.

Statistics in Market Studies

By PAUL T. CHERINGTON

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THE United States is not a single market. It is, rather, a collection of markets which have certain factors in common. With 110 million people spread over three million square miles of territory, the country is the most populous area on the planet having no customs tariff, or serious commercial barriers between its parts. There is a common business language, there is a uniform currency and a single monetary system. The states are closely knit by transportation facilities and by telegraph, telephone, and radio communication; interstate trade is under uniform legal jurisdiction, and the state legal systems have a certain degree of similarity. Throughout the country, commercial customs are, in the main, similar, and there is a fairly well unified distributing mechanism in every important trade.

COMPLEXITY OF FACTORS IN MARKET STUDIES

But, notwithstanding these common factors, the country cannot safely be treated as a unit in market studies. There are few studies in this field which are not obliged to take into account one or more of the non-political bases for subdivision of population. These are as numerous as the whims of human impulse, but often they are more powerful commercial influences than nationality. The markets for some products are determined by the economic status of the people. Silk underwear, for instance, may be ever so much desired, but for most people, under present circumstances, it is a luxury not practical for general use. Other

markets rest on habits and customs, as for example, market preferences for brown eggs in Boston and for white eggs in New York. Others are dependent on prejudices, such as those which account for the difficulty of selling certain cuts of meat. Climatic conditions are another factor; mufflers and ear tabs sell briskly in New England, and not at all in certain other sections of the country. Racial influences are among the strongest factors determining markets. The 978 foreign language newspapers published in the United States bear evidence of the importance of racial cleavages. The composite nature of the population is illustrated by this as it is also by the more familiar facts that in New York City there are more Irish people than in Dublin, more Jews than in Jerusalem, and more Italians than in Rome. Over one-tenth of all the Jews in the world live in New York City (1,600,000 out of 14,000,000). The total populations of Buffalo, San Francisco, and Pittsburgh combined about equal this racial group in New York City. This group is almost as large as the whole city of Philadelphia and twice the size of Boston or St. Louis. The Italians in New York (over 800,000) outnumber those in Rome and are served by 1,933 grocery stores and 204 drug stores—more than all the stores of these classes in some entire states. Buffalo has 218,000 Polish people, which is nearly a quarter of the population of Warsaw. The foreign born population of the United States is one-fourth of the total and in New York State the foreign born is one half. Over 70 per

cent of the population of New York City is either foreign born or of foreign parentage.

The United States has about one-quarter as great a population as Europe in an area approximately equal. The chief contrast is that our races are mixed together in 49 states, while those of Europe are held separate by language and other factors in 41 countries.

It is seldom that any one of these motives determining markets operates alone; although it is not uncommon for one to stand out conspicuously above the others as a controlling influence. Moreover, there are none of these effective restraints on markets which can be regarded as permanently operative. All market studies are confined largely to the present tense.

The market for snuff gives a concrete instance. The output of snuff in this country is about 38 million pounds a year, and it is increasing. Scottish and Norwegian snuffs are sold among the peoples descended from those two stocks, illustrating racial influences. The mountaineers of Kentucky and Tennessee still pursue the habits which were general a century ago, illustrating the influence of established habits. Climatic influences also doubtless have something to do with it. But the present limits of the market may be only temporary. The mournful literature of a century ago is full of sorrow over the spread of the snuff habit among women very much as our own scolds at the spread of the cigarette habit—regarded by many people as more harmful and more disgusting than snuff-taking. Similarly, the annual output of plug tobacco, which amounts to over a pound for every man, woman, and child, is at present confined to consumption by a relatively small part of the population. It may spread to Fifth Avenue and other select circles now using other forms of

tobacco; but for the present, its market is mainly among men who spend most of their time out of doors.

Any form of technical equipment such as machine tools offers an example of a product whose market is determined by the nature of the article and the uses to which it may be put. No great social change is likely to affect materially the influences which determine the actual or potential market for such products, nor do many of the other factors determining the markets for consumers' goods. Economic depression may postpone purchases and competition may cause shifts from one specific machine to another, but the market remains fairly stable and can be measured by almost purely quantitative standards.

GAUGING SALES QUOTAS

The complexity of the market factors and their constant shifting make the sale of consumers' goods peculiarly dependent on influences beyond internal control. Plant expansion, the acceleration or retarding of the rate of production, the direction of sales pressure, and all the other internal adjustments which must be made following shifts in the market (whether those shifts may be natural or induced) all require time. A change in a market may occur almost overnight which necessitates months of work before production is adjusted to it. Conversely, changes in conditions of production have sometimes produced changes in markets which have been long in working out. The inter-relation between the problems of production and marketing have grown more intimate year by year. A relatively short time ago almost any manufacturer could sell goods up to the capacity of his plant by appealing to any convenient portion of the possible market. But, with the growth of plants, in both

size and number, the sharpened competition with other producers of similar products, substitutive competition, and the increased scattering of response due to multiplied pressure, it is no longer possible to depend on getting adequate results from efforts to reach a market without a factual background.

All modern business enterprises recognize this side of the sales problem in one form or another as a result of competition. Quotas commonly are set for the sales force, based not merely on the total number of inhabitants, but with due regard for the variations in habits, or other qualitative factors. For many years the National Cash Register Company could base its sale quotas on the ratio of 1 to every 400 inhabitants. But such rough approximations no longer suffice in highly competitive markets.

Similarly, advertising plans and the corresponding selling operations involve an increasing use of qualitative studies of markets and the means for reaching them. A short time ago an advertising agency made an analysis of the circulation of 44 magazines in a western city of about 500,000 inhabitants. By classifying the income groups and checking the subscription lists by occupations as ascertained from local directories, it was possible to get an idea of the subscriptions by occupational groups and by approximate economic status. The figures thus obtained have proved to quite closely parallel actual figures for national circulations in instances where these were available. By such methods the qualitative factors in circulations may be gauged in buying magazine advertising space.

There is scarcely an advertising campaign, or a selling plan of first magnitude now operating, which has not back of it at some stage a study of the market to determine not only the

number of actual or potential customers, but to get as good an idea as is possible of who they are, what their economic status is, what their buying habits and practices are, and what control their purchases of the goods to be sold. When advertising is involved, these data are supplemented by studies of the means of putting before these people in the most effective way those ideas about the merchandise best designed to convince them of the merits of the merchandise and its adaptability to their use. In this way, not only has advertising become an activity far more constructive than mere "puffing," but the whole process of marketing with which it is allied has been freed from many wasteful elements of chance.

METHODS OF INVESTIGATION

The technique for conducting such inquiries has been assuming more definite form from year to year. Some generalizations about working methods now in use are now possible when the activities of some of the leaders in this field are examined.

The investigations which are conducted by advertising organizations for the purpose of collecting data on which to base advertising plans fall into two main classes:

- (1) Those which are designed to produce simple *facts*.
- (2) Those which are designed to yield collections of *opinions* or judgments of considerable numbers of people.

Generally speaking, the first type can be cast in the form of questions calling for categorical answers. The second, in contrast, involve more or less complex or qualified answers based on human views or reactions. These two types of inquiry merge into each other and they may even be carried on side by side; but in discussing them

there is an advantage in keeping clear the underlying distinction between them. In the first type, the emphasis is mainly on the quantitative aspects of the investigation. If, for example, a given food product were under investigation, one of the first points to establish is how many people there are who either do, or can, use the product; and not until some conception of this mathematical fact is in hand, is it feasible to evaluate properly the supplementary data reflecting the more detailed opinions or judgments which are the result of habits or other qualitative factors.

For investigations in quest of factual data, the procedure is in the main comparatively simple and direct. In determining the field for investigation, the problem is largely one of numbers; the questionnaires designed to bring out data from the field once selected ordinarily are simple and short, asking for straight categorical affirmative or negative answers; the actual gathering of these data also is relatively simple, the factors involved being mainly those concerned with securing a large number of answers cheaply, quickly, and impersonally; and the final tabulation of the material after it has been collected usually is equally direct and free from serious complications.

The second type of investigation, covering opinions and judgments on which decisions about consumer purchases may be based, involves much greater complexity in each of the four essential steps.

In the first step, *determining the field for investigation*, great care is necessary in the selection of representative sample groups. To a certain extent, it is possible to make good use of existing selections. For example, the subscription lists of magazines often present the result of a process of natural selection which has been

going on over a period of years, so that by taking into consideration the character of the magazine it sometimes is possible to get a fairly well-chosen sample group. Similarly, there is a certain amount of selection represented by some types of previous purchase. Owners of high-priced automobiles, for instance, may be assumed to be a reasonably well-selected group for other high-priced purchases.

In addition to existing classifications, however, it is necessary, when much work is conducted by field investigations, to develop arbitrary, new classifications of sources which may be carried over from one investigation to another without too great modification. The grouping of population by incomes, by occupations, by economic strata, or by other standards, serve a useful purpose. One organization, to use a concrete illustration, has found it desirable to set up arbitrary classifications of families to be followed by its investigators working on house to house inquiries. This classification which sounds general and descriptive, but works satisfactorily in practice, is as follows:

- Class A. Homes of substantial wealth above the average in culture that have at least one servant. The essential point, however, in this class is that the persons interviewed shall be people of intelligence and discrimination.
- Class B. Comfortable middle class homes, personally directed by intelligent women.
- Class C. Industrial homes of skilled mechanics, mill operators, or petty trades people (no servants).
- Class D. Homes of unskilled laborers or in foreign districts where it is difficult for American ways to penetrate.

Again, when the distributing mechanism is the subject for investigation,

it may be necessary not only to work out classifications by trades and by types of business such as wholesalers and retailers, but also to set up standards of classification within these groups. The following descriptive classification of retail stores has served a useful purpose in helping investigators to appraise data collected in field investigations:

- Class A. Stores of manifest excellence in their respective lines, giving courteous and intelligent service and catering for the most part to a discriminating clientele. The volume of business done is of minor importance.
- Class B. Efficiently managed stores catering to a clientele the majority of whom are people of moderate means and at least ordinary intelligence.
- Class C. Slipshod stores doing business for the most part with slipshod people. The clerks in these stores frequently are limited in outlook and except on a question of distribution are not as a rule worth interviewing.
- Class D. Not necessarily inferior to Class B and Class C, but of a different type. Class D stores are found in foreign districts where it is difficult for American ways to penetrate. Unless the investigator has trustworthy knowledge of the language spoken in the district and of the local customs of the community group, he should be wary of visiting these stores, as he is more than likely to be entirely misled by appearances and arrive at unwarranted conclusions.

In the second step, *the preparation of questionnaires*, this more complicated type of investigation calls for careful planning. This involves not only care in the selecting of strategic facts, but also in the formulation of the questions

so as to secure the truthful answers with a minimum of distortion due to self-consciousness on the part of those answering them. At the same time, it is necessary so to plan the questionnaires as to keep the way open for obtaining any unusual reactions, thus avoiding deadening or deceptive standardization.

In the third step, *the collection of data*, for this type of inquiry, the working methods need to be carefully chosen in order to insure securing enough material to make the result representative without collecting more than is necessary for insuring accuracy. Personal visits to those whose reactions are sought are the most thorough, and in many respects the best method of procedure; but this method is costly, slow, and under ordinary circumstances yields relatively small number of data. The facts thus gathered also have the disadvantage of being constantly in danger of modification by the personal reactions of investigators. Mail inquiries will yield reactions from large numbers and are thoroughly impersonal; in fact their impersonal character is one of their chief drawbacks. Combinations of these two methods, or perhaps combinations of these with still other methods of investigation, make it possible to get enough reactions to be representative, and at the same time to insure responses which are significant.

In the fourth step, *the tabulation of data*, once obtained, this more complicated type of investigation makes it impossible to set hard and fast rules which are uniformly applicable. In brief, it may be said that it is necessary to conduct the work of tabulation in such a way as to insure accuracy while at the same time preserving such personal or individual qualities as are likely to be useful in interpreting results.

These concrete illustrations of working method serve to give point to the statement previously made that the studies of markets which have become an integral part of marketing plans have raised modern sales operations to a new level of certainty and definiteness. Statistical methods as applied to marketing need the refinements

that can come only from practice; but a long step was taken when the need for statistical facts was recognized. Sound practice in this difficult statistical field cannot be expected to become general instantly, but the task is being undertaken with seriousness and with a clear recognition of sound statistical principles.

Modern Distribution Demands upon the Chamber of Commerce

By JULIUS H. BARNES

Formerly President of the United States Chamber of Commerce

IN order that this topic may be developed in a logical manner and reach a clear and definite conclusion, it is necessary to set forth roughly the various stages in the march of distribution so that the origin of its demands upon chambers of commerce may be understood.

Whether it be assumed that distribution is the servant or the master of transportation does not matter, since each hand washes the other and neither of them is conceivable without the other. Hence, as the porter was succeeded by the pack-horse, as the pack-horse was succeeded by the Conestoga wagon, and as the Conestoga wagon was succeeded by the railway, we find plainly marked steps in the development of distribution.

GRADUAL DEVELOPMENT OF CHAMBERS OF COMMERCE

The porter needed not even a trail although a trail would have helped him; the pack-horse needed only a trail although a good road would have helped him; and the Conestoga wagon could and did negotiate the poorest kinds of roads and unbridged streams although a paved highway and bridges would have been an advantage. Until the introduction of railways, the distribution of commodities in the United States was largely a series of haphazard events and no intelligent study of distribution or its demands was practicable or even possible.

It is inconceivable that there shall be any distribution without some element of transportation, since distribution

is neither more nor less than the transfer of commodities from one ownership to another and the development of society has been preceded by and accompanied necessarily by more complicated methods of distribution, which are associated with more effective and economical means for conveying commodities from one place to another. Any permanent social development presupposes the concentration of the population into smaller areas, and as this process continues the family hut becomes a collection of huts called a village and the village becomes a city. With this centripetal tendency came the need for bringing supplies from greater distances. With the family hut as the center of activities, journeys seldom are necessary except for hunting; with the village the plantation may be somewhat removed, but it is sufficient unto itself and the problem of distribution as we know it has no existence; but a city cannot be maintained without bringing supplies from considerable distances and for this purpose distributors are needed.

Here we arrive at an aphorism which it is well to remember: *The greater the distance, the greater the number of distributors.*

In cities of ancient times the desire for luxuries had not been much developed. Rare, exotic products such as silks or jewels, although used by only a few of the most powerful or wealthiest, probably were the first cause of any great development in distribution. Food of perishable character or of a considerable rarity was unprocurable

except by impracticable methods because the means of transportation were primitive, and even the existence of what was produced in other countries was unknown generally to foreigners.

Probably the first aggregations of merchants are to be found in the "market days," which survive now among savage races and which grew into such great assemblages as the fairs of Nizhni Novgorod and Leipsic. To these fairs producers carried their goods over long distances, and merchants traveled long distances in order to purchase for re-sale. Unquestionably the demands for transportation led to the development of better transportation facilities. Horses and mules were stationed for hire along traveled routes. Wagons of comparatively large capacity were moved on a rough schedule, and all of this presupposed the need for organization. In the concentration of goods in market places and fairs some shelter became desirable, and these shelters were erected sometimes by the citizens of the community, but often by the visiting merchants; and as organization begets organization these merchants found other reasons for co-operation, including, of course, mutual protection. Undoubtedly there was an early tendency to agree upon prices in order to prevent destructive competition, but this brought its own punishment through the invitation to competition by other places, and an investigation of price relationships and fluctuations in barbarous lands very likely would show no more serious dislocations than in the markets of the United States.

Any organization of local merchants and producers is a chamber of commerce in embryo, and contains the seed of such organizations as we are familiar with. It will work toward better roads, toward the lighting of streets, toward the safety of life and property,

toward the building of hotels, and toward better government. These represent primitive needs as well as the needs of the most enlightened and complicated communities.

Any improvement in a city or in the means for reaching it is an inducement to people to go there, and the greater the number who go there the greater the opportunity of the commercial classes to conduct a profitable business. A chamber of commerce is composed of its commercial classes as well as of other citizens who are interested in the development of a community. Its character is a true reflection of its membership, since its membership is dominant and has the power to enforce its reasonable decrees. If the membership is ambitious the chamber of commerce will be active in giving effect to the aspirations of its membership.

VARIETY OF DEMANDS

An almost infinite variety of demands upon a chamber of commerce may be exerted by its members engaged in distribution, most of which will react as benefits to the community at large and the most important of which can be traced to "attempts at improving relations between distributors and their customers." Even when applied to the largest cities this phrase is not inappropriate, but its most intense significance is found in towns and cities of small and moderate size where we find the mutual dependence of retail buyers and sellers of extraordinary importance.

This fact is being recognized with increasing understanding and is manifested in the closer relations between farm bureaus and chambers of commerce as the need is disclosed for tying the surrounding population to its nearest central market, both to sell its produce and to supply not only its ordinary requirements for groceries, cloth-

ing or house furnishings, but for such entertainment as moving pictures, concerts, and lectures. This demand of chambers of commerce by distribution is mentioned first because it is an aspect which has been neglected in a large measure, but which now is a subject of general interest.

There are many ways in which this aroused interest is shown, and one of the best is ready at hand; it is known as "The Neosho Plan," because it originated in a town of that name in the state of Missouri. Designed originally to induce the farming community to come to town for its purchases, it has resulted in raising the standards of merchandising practice, of improving the character of the advertising and of inducing many improvements of a physical nature which have in themselves strengthened the ties between the merchants and their customers. The old idea of a chamber of commerce as a handshaking organization, intended principally for "boosting" and for increasing the population of its community, has given place to the practical and practicable purpose of making the community better, both for those who live in it as well as for those who do not live in it, but who should be taught to rely upon it for certain services.

No two towns or cities resemble each other precisely, and at the extreme ends of the scale they differ profoundly. Because of this the reasonable distribution demands of one chamber of commerce will be quite different from those in another place of the same size. In these days when farmers have suffered so much from the fall in values following the high war prices, chambers of commerce have found a new form of activity in the advancement of funds to reliable farmers for the improvement of their live stock or to facilitate a greater diversity in their crops. Evi-

dently, assistance of this kind might not be at all appropriate to a town or city of the same size located in a district given up to coal mining, but it expresses a principle which can be applied to any district no matter what industry may be predominant.

An objection may be felt that this form of activity is not due to a distribution demand upon a chamber of commerce, but it is unqualifiedly due to that force. We have seen many recent instances and arguments that a nation or a community can buy when they cannot sell. But in the last analysis it should be evident to the lowest form of intelligence that a farmer who has no product which he can sell for money will have no money with which to buy the commodities which merchants have for sale to him. It is the chamber of commerce acting for its commercial members which may exert the greatest influence and perform the greatest service in meeting these demands.

UPHOLDING HIGH STANDARDS

Space is lacking in an article of this kind even to mention many of the demands which chambers of commerce must fulfill for its distributive members; but there is a class of almost supreme importance, since it embraces those elements known as the ethics of business, or, in common speech, honesty, truthfulness, fair dealing. Many agencies are at work on these subjects, but the time has arrived or will arrive very soon when chambers of commerce must be regarded as the best medium for upholding and enforcing through the demands of a majority of its members the highest standards of business practice. Many merchants, and amongst them some of the greatest merchants of the United States, are united in condemning all forms of misrepresentation, and the effect of this is growing. But the frequent introduction of

bills in Congress and of city ordinances proposed for the purpose of preventing it proves that the canker-worm of unfair competition still may be found burrowing into the vitals of our commercial life.

Unfair competition takes so many forms that it would be difficult to describe all of them, but they divide themselves roughly into two classes:

(a.) Those indulged in by resident merchants.

(b.) Those practiced by transient merchants.

In class (a) are to be found principally such offenses as untruthful advertising and the misrepresentation of merchandise, while in class (b) not only are the conditions of class (a) duplicated but almost any sort of rascality may be discovered. I need mention only a few like "fake auctions," the sales of goods by house-to-house canvassers on which a part payment is collected and the goods never delivered or an inferior quality substituted. Although attempts have been made to regulate unfair competition by state legislation, this plan has not been successful very widely because of the too drastic character of many of the measures which have been enacted. In the records of litigation many of the decisions declaring these laws unconstitutional state that their purpose is to prevent even *fair* competition when carried on by non-residents of the particular community involved.

A time will come, and it may not be very distant, when suitable legislative measures will be designed to check unfair competition, but in the meantime it creates a demand upon chambers of commerce by their members for some form of activity which will check, if not entirely destroy, the methods and practices of which honest merchants complain justly. We must not forget that the movement known as the "Better

Business Bureau" has shown the way to cause at least a modification of the more flagrant offenses; and a persistent attack by a chamber of commerce committee, reinforced by good legal advice, will induce a strong and immediate tendency toward not only the discouragement of unfair practices but the encouragement toward higher ethical standards.

In periods of prosperity the study of wasteful methods is likely to be forgotten or neglected in the struggle to do more business. It seems to be easier to sell larger quantities of merchandise than it is to discover less costly methods of doing business. Evidently the profit may be the same when a less quantity of goods is sold with less costs of selling them as compared with the sale of a larger quantity at a higher cost of distribution. Much of this waste is due to a lack of co-operation among business men. Although the local deliveries of merchandise do not represent a very large percentage in the costs of doing business, even when each merchant performs his own deliveries, there is an evident waste when three or four wagons make deliveries to the same retail customer, and through the chamber of commerce there is presented a means for arousing the co-operative spirit of the members by a study of the possibilities for economy in some form of centralized operation of delivery.

Another form of co-operative effort which is appropriate to the work of chambers of commerce is found in a sensible arrangement of business hours, holidays, and vacations, in order that the public may be served conveniently and economically; that the health and recreation of employees may receive just consideration; and that employers shall not suffer from onerous and unnecessary conditions. Excessively long business hours and inadequate vaca-

tions often are the result of an exaggerated state of competition. This yields most readily to an enlightened comprehension of its folly. Small communities are not affected so seriously as those of larger growth where the multiplying use of automobiles and the increasing density of traffic in retail districts has introduced new complications related closely to the question of business hours. Here is disclosed plainly a demand of distribution on chambers of commerce which cannot be supplied so effectively by any other organization.

COMPLEXITY OF PROBLEMS

As villages grow into towns and towns grow into cities, the problems of chambers of commerce increase in complexity. Whereas in a small place, all of the merchants taken together do not exceed 25 or 30, there is no reason or opportunity for grouping; but when these 25 or 30 become 250 or 300 there is a natural tendency for a separation more or less definite between the retailers and the wholesalers, and when the city is a center of production the manufacturers also have their problems. Usually the demand upon the chamber of commerce is manifested first in a retail section which is not opposed in any way to the interests of the other members of a chamber of commerce, but is formed merely for the purpose of giving intelligent study to the retailing problems of the membership. There has been some tendency to regard the organization of retail bureaus or sections as something in the nature of a "split," but in most instances more reasonable counsel has prevailed and the retail bureaus have performed a real service within the chamber of commerce quite as much for the benefit of the whole body as for the retailers themselves.

As competition between localities becomes more intense through the wid-

ening spheres of their influence and the improvement of communications through automobiles and better roads, the pressure is manifested by such efforts as "Buy at Home" campaigns. These are justified on many grounds, not necessarily because people should buy at home under all circumstances but because a well-conducted campaign, either for exploiting the "buy at home" idea, or to arouse interest during a dull season, or to stimulate the competitive instinct in merchants to improve their window dressing, or the arrangement of their stores, presupposes a wide-awake community which is alive to the need for enterprise and push in the management of its community affairs. Chambers of commerce are the nuclei and the machinery of such activities and they constitute one of the great demands upon commercial bodies, the activity of which is indicated by the success with which it carries the message of its members.

POSSIBLE STATISTICAL WORK

So much information is needed by distributors in these days of fluctuating prices and intense competition that it is somewhat hard to decide what relation the chamber of commerce bears to this subject or how far it may be expected reasonably to go in the collection of statistics for its members. Retail prices are fairly well collected by the Bureau of Labor Statistics in Washington; wholesale prices are procurable through the trade papers and the trade information contained in the great daily papers. The collection of figures on the quantities produced, on hand and sold of various commodities periodically, is still in an immature state. Since it is not practicable for chambers of commerce to collect these figures, they need here no further mention, important as they are.

There is another class of figures

which has been neglected quite generally by public bodies although some private efforts have been made to collect the facts.

I refer to a census of distributors which will state the number of establishments from which any given class of commodities are distributed, both retail and wholesale. In the United States there are perhaps a very few instances where the number of groceries in a certain city is known, but for the greater part of the country we are profoundly ignorant as to the number of groceries or drug stores, or hardware stores, or indeed any kind of stores where merchandise is sold at retail. We do not know how many chain stores there are in any branch of trade, yet all of these facts are of importance not only to the distributors in a city but to the consuming population itself. If every chamber of commerce in the United States would undertake an enumeration of distributors the value of this service for its distributive members would be difficult to exaggerate. It can be done only through some such organized effort or through one of the government departments, presumably the Census Bureau; but the Census Bureau can undertake it only by an act of Congress carrying an appropriation, and the results would be unavailable for several years after the Congressional authorization had been granted.

The condition of retail trade is another form of distribution statistics much needed by all business men which could be collected most conveniently by chambers of commerce. A beginning has been made by the Federal Reserve Board, but it is too limited in scope and does not include many of the areas which are required to complete the picture.

As distribution has developed and more particularly during very recent years, a demand has grown for the better education of sales-people, especially in a knowledge of the merchandise with which they deal. This began through the well-known "demonstrations" of manufacturers to acquaint the public with the merits of the commodities which they produce, but it resulted inevitably in giving much needed instruction to the sales-people employed in the stores which sell the goods. On the principle that "the consciousness of ignorance is the beginning of knowledge," a demand manifested itself for further instruction until now, well-considered and effective courses are conducted in many cities and towns throughout the country and very largely through the medium of chambers of commerce. Many state universities provide the courses as well as the instructor, and are performing a great service which, however, cannot reach its maximum without the active encouragement and practical assistance of local merchants working through their organizations.

Although in the foregoing examples of the demands by distribution of chambers of commerce there is no attempt at completeness, they are illustrative of the wide range of subjects which these demands embrace and show clearly the importance which should be attached to the fundamental purpose of a chamber of commerce. The application of its singular power for uniting its members in the study and accomplishment of the highest commercial aims not only for their direct individual advantage but ultimately and inevitably for the upbuilding of the whole community.

Business Forecasting and Its Relation to Modern Selling

By ROGER W. BABSON
The Babson Statistical Organization

THE sales manager who lasts is one who is primarily a business man and secondarily a sales manager. This will be especially true in the years ahead when growing competition will weed out incompetence in every field. *Almost anything passes muster during a generation of rising prices, but only the best can survive a generation of falling prices.* There is no future for the "prima donna" type of sales manager, who knows nothing, and cares less, about credit, collection, production, profit or any other phase of the business as long as he can make sales look big. Many organizations have recently learned the costly lesson that it is better to take a business man and make a sales manager of him rather than take a "sales manager" and attempt to make a business man of him.

Therefore, in this discussion of the reporting and forecasting services, though I have especially in mind the reader who is interested in the distributing end of the business, I am not going to treat him as a narrow specialist but rather as an all-round business man. There is one, and only one, way to build up sales profitably and permanently—and that way is to co-ordinate sales with credit, collections, commodities, labor, profits, dividends and everything else upon which the success of an enterprise depends.

The economic "services" can be divided into two groups: (1) the reporting services, which specialize in collecting facts and figures; (2) the forecasting services, which specialize in interpreting the information. These two types of service are not entirely distinct. Some of the collecting or reporting serv-

ices discuss their statistics, and some of the forecasting services do field work or compilation of original data. The boundaries between the two groups are not hard and fast, and the suggested classification is merely for convenience in reviewing the work which these various services are performing.

THE REPORTING SERVICES

Among the pioneers in this field were the great mercantile or credit reporting agencies, Dun and Bradstreet. These organizations are best known by their books of ratings and their special reports on concerns and individuals seeking credit. Each of these organizations, however, publishes a useful magazine that contains statistics on business failures and other commercial and financial information. There are other credit rating companies; and important activities in the interchange of credit information have been developed by the National Association of Credit Men.

Besides the rating of business concerns there has been developed the rating of securities, together with publication of statistics on the issuing companies. Poor's ratings of stocks and bonds are a good example of such service; the founder of the Poor organization was among the earliest of all workers in the field,—in fact, has been called the father of business statistics. Moody's ratings have also come into widespread use. One of the most comprehensive and long established services is that published on cards by the Standard Statistics Bureau giving information on a large list of stocks and bonds.

In the industrial and commercial field, an interesting service is that conducted by the F. W. Dodge Company, which supplies information on specific projects in building and construction. The Canadian building field is ably covered by the MacLean reports. The Motor List Company provides a very complete service on registrations of automobiles. Other mailing list and directory companies, such as Boyd's, and Buckley and Dement, are rendering valuable service.

In recent years there has been a marked tendency among the trade journals to expand their statistical material and also to discuss the trends of production, stocks, and prices. Publications such as *Automotive Industries*, the *American Contractor*, *The Jeweler's Circular*, the McGraw Hill group, and other representatives of the trade press are giving their readers a wealth of economic as well as technical information. The stronger publications are making every effort to keep their editorial activities untrammelled by advertising considerations, though this phase of trade journalism will always remain a problem.

This same problem of serving both the reader and the advertiser is also encountered by the general business publications and by the newspapers. Nevertheless, high editorial standards are reached by magazines such as the *Commercial and Financial Chronicle*, the *New York Journal of Commerce*, *System Magazine*, *Printer's Ink*, etc.

There has been a remarkable increase both in the quantity and quality of business information published in the newspapers. A real service is available in the pages of such papers as the *Boston Transcript*, the *Chicago News*, the *New York Times*, and others.

Some of the most useful publications are the yearbooks. A good example is the *Directory of Newspapers and Period-*

icals, compiled by the N. W. Ayer Company. Another excellent publication is *Rand McNally's Bankers Directory*, issued every six months; this is becoming of great service because of the editorial policy of enlarging the scope of the statistical material.

One of the most striking developments of recent years is the work of the National Retail Hardware Association, The National Retail Jewelers Association, The Newsprint Service Bureau, The American Railway Association, The Life Insurance Sales Research Bureau, The National Association of Purchasing Agents, Canadian Bankers Association, National Lumber Manufacturers Association and other organizations. It is deplorable that the development of statistical research by the associations, in the main an activity of the utmost value to the whole nation, has been impeded by fear of persecution at the hands of narrow-minded and short-sighted politicians, whose malignity is matched only by their stupidity.

On the other hand, in sharp contrast to the attitude of some politicians, who regard business as Mexicans do the bull, we have the splendid work of the Department of Commerce. Under Secretary Hoover, this Department has issued a *Survey of Business* and other publications, which fully merit the title of business services. Excellent work along this same line is also carried on by the Federal Reserve Board, the Department of Labor, and other departments. New York, Massachusetts and a growing list of other states are also furnishing economic data of considerable importance. In Canada, the Dominion Bureau of Statistics under the leadership of Dr. R. H. Coats is collecting valuable information for the business man.

Among the chambers of commerce, several of the most intelligent of these

organizations are collecting and disseminating real information on local conditions. In the old days, the typical chamber of commerce or board of trade conceived it their duty to broadcast optimistic reports and suppress any item of an unfavorable nature. Their motto appeared to be: "Brush up the good news and hush up the bad." The better organizations, however, have been quick to perceive that the only way to make their word carry weight is to publish the truth continuously through good times and bad. They have learned the lesson of real service both to their membership and to business at large. In this they were led by the publication of the United States Chamber of Commerce known as *The Nation's Business*.

Included in the list of contributors to business information, there are the banks. Some of them have made the natural mistake of attempting to discuss business conditions throughout the entire globe and there has been much needless duplication. The banks which are most successful in putting out material of real value are those which specialize on the localities and industries with which they are actually in contact.

Several of the colleges which have courses in business administration are collecting and publishing data on business conditions. The simple, sound, and eminently practical studies of the Harvard Business School, for example, or Northwestern University, deserve the highest credit. Excellent work is also being accomplished by such institutions as Carnegie Institute, Cornell and the state universities of North Carolina, Nebraska, Indiana, Idaho, Illinois, and Washington. The type of research which many of the colleges are performing has a brilliant future.

One of the latest, and in some ways the most interesting, sources of busi-

ness information is the radio broadcasting station. Starting in a simple way with some brief reports on weather, crops, and markets, this activity has gradually been developed until the business man can now get a surprisingly comprehensive service from the air. With the future perfecting of apparatus and assigning of wave lengths, the broadcasting of business reports has immense possibilities.

The radio industry is in strong hands and is being administered by keen intellects. Those responsible for its development can undoubtedly be depended upon to build upon a broad foundation as the automobile industry has done. The automobile started off as a vehicle of entertainment. In fact, passenger cars were originally described as "pleasure" cars. It was foreseen, however, that in order to secure maximum stability for the industry and make it play its full rôle in society, the public must be educated to the automobile as an essential as well as a luxury. In the same way the leaders in the radio industry will more and more realize the importance of arranging, their programs to provide not only a bit of jazz for tonight's diversion but also a definite help on tomorrow's job. It seems probable, therefore, that business broadcasting is due for continued expansion.

THE FORECASTING SERVICES

It should be emphasized again that the splitting of business services into the two groups (reporting and forecasting) is for purposes of description rather than scientific classification. In other words, the reporting services may forecast, and the forecasting services may report; nevertheless, most of them have a bent in one direction or the other. Those now under consideration are distinctly identified with forecasting, not only in the public mind

but in the predominant character of their publications.

These forecasting services can be arranged in three groups, as follows:

- (1) Services that emphasize some form of the lag theory.
- (2) Services that emphasize the area theory.
- (3) Services that emphasize other theories.

The lag theory is based on the observation that certain factors rise early at a time of business expansion; other factors rise at a later stage of the period; while still other factors with a pronounced "lag" may not rise until the close of the period. A similar sequence or difference in phase characterizes a period of business depression.

A simple illustration of this theory is the behavior of the stock market. Many times in the past an upward movement in business has been foreshadowed several months in advance by a rise in stocks; and the market has often anticipated a downward turn in business, by a considerable interval.

It is obvious that this tendency of different factors to lead or to lag is a phenomenon of great practical importance and that it should serve as a very useful guide in forecasting. The theory has been given profound and prolonged study; and when carefully interpreted and applied it has led to some most serviceable results.

DEVELOPMENT OF LAG THEORY

One of the pioneers in the development of the lag theory is the Brookmire Economic Service. Without attempting refinements of description, it may be noted briefly that the Brookmire organization originally developed several indices such as: (1) a measurement of the monetary and credit trend; (2) a measurement of the trend of the security markets; (3) a measurement of the trend of business.

It is well established that easy money and abundant credit are one of the causes of and the prelude to rising stocks. In other words, available credit tends to be employed first in the stock market. As expansion proceeds, funds are withdrawn from stocks with resulting decline of their prices, and put into business, which in turn expands. Hence, to state the proposition crudely: monetary conditions anticipate stock market conditions; and stock market conditions anticipate business conditions.

In actual practice, of course, the theory cannot be applied in this naïve form. Anyone who attempted to glance at the quotations for money and stocks, and thereupon forecast the future of business, would almost surely come to grief. An organization such as Brookmire has explored the field of money rates with a thoroughness that is almost incomprehensible to those not acquainted with this type of research. The same applies to their analysis of stock market movements and business conditions. In fact, as an outgrowth of their earlier studies there has been evolved a forecasting line that offers many important advantages. Moreover, such an organization comes to possess a fund of experience that can never be fully expressed in any scheme of index numbers or reduced to type. It is not only the validity of their theories but the soundness of interpretation and application which makes the Brookmire forecasts valuable.

Another highly regarded exponent of the lag theory is the Harvard Economic Service. This service also emphasizes the orderly sequence in the rise and fall of monetary, security, and business factors. Not only all students of economics and statistics, but all business men are greatly indebted to this group of workers for the expert-

ness and scholarship which they have brought to bear on the subject. Their contributions have improved and enriched the whole field and have given it a needed overhauling technically without getting away at all from its intensely practical aims.

In the business of forecasting, there are no patents or proprietary processes. It is distinctly a professional field, in which all theories, principles, and methods are given the fullest possible publicity. The tendency of one service to emphasize a certain theory while another service emphasizes a different theory is beneficial and salutary. It means that the business man is profiting by a well-rounded, well-balanced survey, far more effective than if each service approached the subject from precisely the same angle.

Business forecasting is still a comparatively young science and art; and especially during these years of development there will be times when the different theories may lead to conflicting conclusions. This does not mean that any of the theories are unsound but rather that they are all in a formative stage. Those closest to the subject believe that when the kinks have been ironed out and the corners knocked off, the theories will be found to be simply the varying aspects of the same truth viewed from different angles. It is not a question, therefore, of eliminating one theory in favor of another. Continued research should eliminate any inconsistencies, so that the business man will get clarity instead of confusion; but each service should remain a specialist in the particular school of thought which it finds most congenial.

AREA THEORY

From the above viewpoint we will refer to the area theory as advocated by the Babson Statistical Organization. The area theory is the outgrowth of a

principle originally proposed by Sir Isaac Newton. Newton suggested that the fundamental law of action and reaction, which obtains so rigorously in physics and mechanics, can be traced likewise in economic and human relations. The first investigations along this line yielded only negative results. In business, for example, there is found no equality in the degree of expansion (action) and the subsequent depression (reaction). Expansion may reach any intensity, varying from the mildest improvement to the most hysterical boom; while depressions are slight, profound, or any one of a dozen intermediate graduations. The records fail to show that when business goes up like a rocket it comes down like the stick. There is absolutely no definite equality between the height of the rise and the depth of the drop.

Likewise if you investigate the time element, you can find no demonstration of the law of action and reaction. A brief expansion may be followed by a prolonged depression, and vice versa.

When, however, you consider both intensity and duration, combining the two to form an area, then Newton's law is demonstrated in a remarkable way. Suppose, for example, that a period of great activity has lasted several years, thus forming a big area. With considerable assurance you can forecast that the ensuing period of depression will be equally big. Whether it will take the form of an excessive drop of brief duration or a moderate decline dragged over a prolonged stretch, no man can foresee.

The shape of an area of depression is unpredictable. Its size can be foretold with considerable precision. This, stated very briefly, is the area theory. Like the lag and lead theory, or any other theory, its practical value depends largely on the good judgment

with which it is interpreted and applied.

Moreover, like the lag theory, the area theory cannot be put into practice successfully without most thorough work. You cannot gauge the intensity of a period of expansion or depression merely by a cursory glance at a few figures. Business conditions must be actually measured by an exhaustive study of fundamentals. In other words, whatever theory one follows, the first procedure is much the same. In fact, in the compilation of the Babsonchart we obtain three separate indexes corresponding approximately to the three indexes used by Brookmire or the three indexes used by Harvard.

DIFFERENCE BETWEEN THEORIES

The difference in the two systems is the use which is made of these indexes. Though we examine them, of course, from the standpoint of the lag theory, our principal interest is in combining them into a single summary barometer figure. This is charted from week to week and gives us the contour of the Babsonchart. Through the middle of this chart we lay the so-called X-Y Line. Above the X-Y Line appear the areas of expansion; below the X-Y Line appear the areas of depression. This X-Y Line follows in the main, the trend of check transactions, and these figures are used in its preliminary location. When, however, there has been completed a pair of areas (that is, an area of expansion and an area of depression) then the X-Y Line, if necessary, is re-located for this particular period so that the two areas are in balance. Experience shows that such revisions are comparatively slight; if, in place of bank clearings, we could find some statistics which more truly represent the median line of growth of the country, the X-Y Line could probably be placed at once in its final position. The Bab-

sonchart is capable of much further improvement, not only with respect to the locating of the X-Y Line, but also with respect to the data used in compiling the summary barometer figures which form the contour or profile.

Each theory of business forecasting offers its own peculiar problems. When studying the lag theory we have found that one of the most difficult points is to determine whether a given movement will prove to be a minor turning point or a major turning point. For example, take the statistics of building permits. These records show that there is a marked tendency for the *number* of building permits to lead while the corresponding *value* of these permits tends to lag. Suppose that at a given time you observe a downward bend in the chart of the number of permits. You may be reasonably sure that a few months later you can expect a downward trend in the value of permits. Note, however, that you still have to decide the important question whether the downward turn which you have noted is merely a temporary recession, or whether it marks the culmination of a major swing.

In many cases this is really the critical question. If I tell you, for example, that sales next winter are going to decline, you immediately want to know whether the drop will be serious or trivial. Minor ups and downs are continually occurring and most of them may be disregarded. The thing which concerns you most is to foresee not the mere occurrence of some movement, but rather its relative severity. Hence, the lag theory, though it enables the forecasting to a considerable extent of turning points in business and other factors, always has to be supplemented by good judgment as to whether such turns will be severe or trifling. The services which specialize in this theory are making good progress with this

phase of the subject, and the methods which they are working out are very promising.

The area theory likewise has its own particular problems. One of these is to devise methods for anticipating more closely the size of an area of expansion. In the case of an area of depression, the procedure is very clearly indicated. After a man has borrowed money from a bank, you can forecast what amount he will be required to repay. After a man has indulged in overwork you can foresee, to some extent, the bill which nature will present. The difficult thing to forecast is the amount which a man will borrow the next time he applies for credit, or to foresee how far a man is going to overtax his strength in his next period of overwork.

In other words—given the action, you can predict the reaction. It is the prediction of the action itself which offers especial difficulties. This problem, however, is being studied continuously and there seems little doubt that it is only a question of time when some practical solution will be devised. Already progress has been made in this direction. Furthermore, it has been learned that on the law of averages there is a marked tendency for both the areas of prosperity and the areas of depression to keep within somewhat constant limits.

It is true that under abnormal conditions such as obtained during the war period, an area may reach unusual proportions. There have also been areas that were distinctly under-sized. In the main, however, there is reasonable assurance that any area of prosperity, while theoretically it can attain any conceivable size, as a matter of fact usually terminates within limits that can be approximated. Trees vary in height, but we know that none of them can grow to the skies. When an area of expansion has passed certain points

there is a strong presumption that it is nearing its termination. Hence, while the size of an area of expansion, strictly speaking cannot be foretold, nevertheless it can be estimated sufficiently close for most practical purposes.

Further corollaries of the area theory are of immediate importance. It has been found, for example, that prices of stocks, prices of bonds, commodity prices, money rates, building, and various other factors tend to reach a high point or low point when there has been consumed a certain proportion of an area of expansion or an area of depression.

More detailed applications of the area theory will be treated in a later section. Before passing to this topic, however, let us complete our description of the services by a brief word regarding those which do not specialize in the lag or the area theory, but follow certain other methods.

ENLISTING THE AID OF SCIENCE

One of the forecasting systems recently developed is based upon a process somewhat analogous to the methods which engineers call "differentials." The process is somewhat involved, but it can be explained in a broad way as follows. Take a factor such as bank clearings, for example. Assume that clearings are increasing every month. This increase may be a fixed quantity (such as \$100,000,000 per month) or a fixed percentage (such as one per cent per month). Of course a uniform percentage rate of increase represents a more pronounced upward trend than does a uniform numerical increase. There is still another trend, however, such that clearings may be increasing not only numerically and not only in percentage, but this percentage rate itself may be increasing. In other words, in successive months there may be increases of 10 per cent, 15 per cent,

20 per cent, etc. The percentages may be growing at a fixed rate.

It may even be discovered that this rate of growth of the percentage is tending upward. In short, by a process of continuous analysis, finer and finer, there can be worked out a succession of growth measurements somewhat akin to the engineer's differentials of the first, second, or higher orders. Of course the same principle applies to a set of statistics which is decreasing instead of increasing.

From a business standpoint such procedure sounds very abstruse; but a study of actual business records certainly appears to indicate that trends and tendencies can often be disclosed much more clearly by mathematical analysis of this type than by mere inspection or by ordinary charting. Other things being equal, preference should always be given to methods of simplicity; but business men should never overlook the fact that chemistry and other branches of science which have an extremely complicated technique are of the utmost practical value. Business men should be ready to receive help from any source whether it is the verbal report sent in by their salesmen, or the involved processes of higher mathematics.

Those who are skeptical of the possibility of making mathematics serviceable in business have before them the demonstration of the insurance business, which has built up immense activities in which actuarial science has played a leading part.

There are various other types of service which do not follow any clearly defined theory, but operate on general methods comprising a variety or combination of various systems. In this connection one caution is worth noting. Though most of the services have kept away from this danger, there are still individual business men who

try to forecast business conditions on the basis of a single factor, like the stock market, pig iron production, or building. It is unfortunate that very often a single barometer has made a correct indication and has given some business man a false confidence that he has discovered an infallible clue to the future. The trouble is that presently there comes a time when he bases some serious commitment on the indication of his pet barometer and the indication proves to be false.

To be sound, a system must be based upon a broad group of factors, so that they will mutually check each other, and the combined reading will be reliable. It can almost be said that when you are looking into the merits of any business service, the question of real importance is the scope of the barometers studied rather than the technical details of how they are handled. Nearly any of the established theories should give reasonably accurate results, provided it is applied to a sufficient number of good barometers; whereas even the soundest theory may lead you astray if you attempt to apply it to a scanty and ill-chosen list of statistics.

WHAT THE SERVICES CAN AND CANNOT ACCOMPLISH FOR THE BUSINESS MAN

For generations business men have been hunting for some magic method as the visionary of olden times searched for the philosopher's stone that would transmute base metals into gold. *There is no possibility that any way will ever be discovered for operating a profitable business without work or worry.*

Every time an improved method appears there are many business men who grasp at it blindly and fatuously in the fond delusion that at last they have found a panacea for all their troubles. For example, when "system" first appeared, it was taken up with tremen-

dous enthusiasm by great numbers of business men with the idea that a business could be systematized to such a point that it would run itself. Then came "efficiency," and a crowd caught up the new idea as eagerly and as blindly as they had done with system. "Cost accounting" shows somewhat the same history.

BUSINESS DEMANDS FORECASTING

Almost identically this same experience will be the fate of forecasting. Already many organizations have snatched at business forecasting in the hope that it would do away with all work and worry. Such conclusion is absolutely a will-o'-the-wisp, and the pursuit of a universal panacea for business will always end in disappointment and disgust. Nevertheless, each one of these great movements—system, cost accounting, efficiency, and forecasting—is absolutely sound when properly used and will remain and further develop as a permanent part of business. While business can never become automatic, it is making continuous progress, and these various new methods and practices represent permanent improvements.

It should never be forgotten that business barometers are to the business man only what a compass is to a sea captain. A sea captain could not get on without a compass, but a compass will not hoist the sail, put coal under the boiler, or perform any of the other activities of the ship. The compass is merely the guide that enables the captain to direct the activities of his ship more intelligently.

There is a vague feeling on the part of the business public that a man has only to foresee the future in order to amass an immense fortune. But foresight without action is absolutely barren. *Experience shows that while men differ to some extent in their ability to*

forecast, the greatest difference of all between men is in their ability to translate foresight into action.

This seems a very simple point, but those who are in most frequent contact with business men realize that here is a point which cannot be emphasized too strongly. A map will give you directions for reaching any given point, but the map will not provide transportation. A book of instructions will tell you how to operate an automobile, but the book cannot drive the car. Perhaps the one most important thing to get clearly in mind in connection with the business services is the realization that their soundest information and their most far-reaching forecasts are nothing but paper and ink until translated into the definite plans and policies of your own organization.

Several of the reporting and forecasting services were designed originally for the service of the investor. In some ways the problems of the investor and the business man are similar, but there is a radical distinction. The investor always has the choice of buying, selling, or staying out of the market altogether. He can wait to pick the proper periods for any of these courses of action. The business man, however, is in an entirely different situation. Action along one line or another simply cannot be deferred by the man who has a large capital investment, loans to the banks which must be taken care of, payrolls to meet and thousands of employees who must be kept profitably occupied.

No matter how threatening the outlook, the average business man cannot follow a neutral course like the investor, but must constantly continue to make commitments in one direction or another. Sometimes an investor takes the position that forecasting is an impossibility and that he will have nothing to do with it. The business

man cannot take this position unless he is willing to quit business altogether. As long as he remains in business at all, he must make forecasts every day. He may make these forecasts with the help of one or all of the business services, or he may forecast by rule-of-thumb or by hunch. But forecast he must, because every commitment which he makes is necessarily based upon some judgment of the future. It is very easy for a business man to decide that he will have nothing to do with the future, but events will speedily prove that the future will continue to have something to do with him.

RESPONSIBILITY TO EMPLOYEES OF BUSINESS MEN

There is one possible exception to the above principle, but this is extraordinarily rare. Occasionally you will find a business man who deliberately plans to go in and out of business as a professional trader goes in and out of the market. Occasionally a man will buy a business at or near the bottom of a period of depression, ride up on the crest of the wave and then sell out before the crash comes. This plan has certain obvious advantages from the standpoint of the operator, but what about the organizations with which he operates? There is nothing illegal and there may be nothing unethical in this plan of buying into a business and selling it out. Nevertheless, it does not appeal to the majority of business men. The typical head of a real business enterprise, whether it is large or small, feels his responsibilities very keenly and is intensely loyal to the workers and associates whose careers are in his hands. A man of this type would no more think of abandoning his organization in advance of a period of difficulty, than a captain would think of deserting his ship in time of storm.

This tendency of business executives to stick by their organizations and see them through periods of depression is becoming more common as business becomes more complicated. Every day sees a further trend toward the binding of all industries together. The tanner is responsible on the one hand to his customers who want leather and on the other hand to the people who sell hides; in fact leather exists primarily because people eat meat, and the hides of the cattle must find a profitable outlet.

In the old days organization and relationship in business were much looser and business men's responsibilities were therefore not perceived so clearly. Today every business man finds himself responsible not only for the activities of those within his own concern, but also the customers to whom he sells and the producers from whom he buys. He cannot close down the shop without reactions on all these three groups. Whether times are good or bad he must keep going in one way or another, or else fail in their time of need the very people to whom he owes his success.

As business becomes more closely knit and intertwined, this threefold responsibility is being brought home very keenly to the better class of executives. In the old days it was thought to be very good business for a mill to run overtime during a period of expansion and then to close down and throw out its employees during a period of depression. Those who practised this policy did not then see so clearly as they do now that in the long run these wild swings from one extreme to the other are exceedingly costly. There has grown up widespread recognition of the importance of ironing out the business curve and more nearly equalizing the booms and the slumps. The condition of maximum profit as well as national welfare is that business shall run on an even keel.

APPLICATION OF BUSINESS FORECAST
TO SPECIFIC PROBLEMS

In broadest outline business consists of buying and selling materials and handling labor.

Let us examine the buying phase. Here again we have the situation that the business man can buy in reduced quantities or can postpone purchasing altogether for a limited period. Eventually, however, he must again enter the market, at least on a hand-to-mouth basis. He is not in the same position as the investor who can stay out of the market years at a time if necessary when conditions are not to his liking. It is, therefore, not a question of whether commodity prices can be forecast with infallible precision, but rather whether such forecasts can be made sufficiently accurate to enable a business man to control his purchasing more intelligently. Experience shows that while an individual commodity at certain times may be extremely difficult to forecast, nevertheless the price movements of a broad list of commodities, month in and month out, can be anticipated with considerable accuracy.

It is impossible to lay down any stereotyped method of forecasting that will apply in detail to every commodity. For each commodity there are available certain statistics. When one set of statistics is not obtainable it is necessary to use some substitute. Wherever possible, of course, a forecast should be based upon an examination of the trends of production, consumption, stocks, imports, and exports. Another important point in such work is to distinguish between those commodities (such as agricultural products) which have a pronounced seasonal movement and other commodities where the seasonal movement is comparatively slight and the swings represent mainly the changes in fundamental conditions.

Moreover, the forecast for any individual commodity must necessarily depend to a great extent upon the trend of the commodity market as a whole or the general price level. This in turn is closely connected with the broad outlook for general business. In other words, the first essential in forecasting the price of any individual commodity is to determine the probable trend of general business. On this as a basis, estimate the trend of the general price level. Finally, study what the economists call the "dispersion" of prices; that is, the relation of the individual commodity to all commodities.

The trend of business as a whole can be judged either upon the basis of the area theory, the lag theory, some other theory, or a combination of all. The lag theory will give you a clue as to whether commodity prices should trend upward, downward, or horizontally, depending upon the movements of some other factor or group of factors which rise or fall in advance of commodity prices. On the basis of the area theory, the probable trend of the commodity market can be judged by the size of the area which has been swept out; because the high points and the low points of the commodity market tend to occur when a given proportion of an area of expansion or depression has been consumed.

Reviewing the entire recorded history of modern business, we find that there is not only a swing from expansion to depression, but that an even broader and more fundamental movement is in evidence. Following the Napoleonic Wars and likewise the Civil War, there came a long downward slide of commodity prices. This gradual but tremendous decline lasted for years and was periodically interrupted by upward and downward movements of limited intensity and duration. Many observers are confident that his-

tory will repeat itself and that we shall witness during, say, the next few decades, a broad downward movement of commodity prices as an aftermath of the World War. Of course, this movement will be broken by occasional rises, but as a whole the trend of prices may be in a downward direction. This means that every forecast of commodity prices must take into account the possibility of this underlying influence.

TAKING ACCOUNT OF EMPLOYMENT TREND

The business man buys commodities and then brings to bear upon them human labor. It is now generally recognized that when handling commodities, much depends upon the trend of business conditions. It is equally true that when dealing with labor the trend of business conditions must determine one's policies. No sounder advice can be given to those responsible for the labor of any organization than to shape their management in accordance with the fundamental trend. To take a practical example, suppose that an executive is about to discuss with some of his people a demand or request for higher wages. Before beginning such a conference the executive should ascertain very carefully the trend of employment.

If employment conditions are due to become worse during the period ahead it is exceedingly poor judgment to grant wage increases. Such a commitment merely means that it will soon be necessary either to withdraw the increase—which always has an unfortunate reaction—or to sacrifice many workers in order to maintain the compensation of a few. If, however, employment conditions are likely to become constantly better, a refusal to grant the wage increase may be a serious mistake. It is likely to encourage dissatisfaction

and inefficiency. Furthermore, it is probable that within a short time it will be necessary either to lose the workers to other organizations or else to grant a belated increase which will be practically an admission that the previous refusal was a mistake.

It has been demonstrated time and again that one of the surest ways for a business executive to lose the confidence and loyalty of his workers is to take some position and follow some policy which later is proved a blunder by actual conditions. On the other hand, the executive who correctly sizes up the trend and takes action accordingly may meet with some temporary dissatisfaction, but in the long run will win out with his people as they realize his foresight.

Again it is worthy of note that, while the business man can hire and fire and can enter or leave the labor market to some extent, he ordinarily cannot stay out of this market altogether. Whether conditions are favorable or unfavorable, the business man must continue to make goods and manage labor. Therefore, whether or not he believes that labor conditions can be forecast with 100 per cent precision, he knows that even a partial help in anticipating tendencies will be of immediate assistance. He is not like the solitary investor who can dismiss the outlook with the offhand decision to stay out of the market altogether until the trend becomes more clear. Whether the outlook is plain or obscure, the manager of labor must decide one way or another and stake his success on the accuracy of his decision.

THE INDUSTRIAL TREND

After commodities have been bought, and by the application of labor have been converted into finished goods, this merchandise must be sold. There are many times when the business man

would like to be free from this necessity of selling. Periodically there prevails what is known as a buyer's market. This means that the buyer has everything his own way because more goods are being offered than are required. Goods have to be sold, however, whether there is a buyer's market or a seller's market. It is not, therefore, a problem of deciding whether future conditions are going to be favorable for selling, but rather of finding those localities and those industries which offer relatively the best opportunities.

When selling products such as motor trucks, machinery, and other factory equipment and supplies, it is often convenient to lay out your advertising and selling campaigns along industrial lines. What the sales manager wants to know is chiefly which industries among those available to him as markets are most active and therefore most likely to buy. On the other hand, in the case of merchandise such as passenger automobiles, clothing, food products, and other goods sold to the individual (either directly or through trade channels), the director of sales finds it most convenient to lay out his campaigns along geographical lines. What he wants is a list of the localities which are enjoying relatively the greatest prosperity and therefore are relatively the best markets.

In forecasting the industrial trend each industry is almost a problem by itself. That is, the available statistics depend very largely upon the industry which you are studying. For some industries there can be obtained very comprehensive figures, while for other lines practically no data can be found. Whatever the industry under examination the same steps are necessary as with commodities. That is, decide on the outlook for general business, then decide on the industrial outlook as a whole, and finally connect up the indi-

vidual line with the trend of all industries as a group.

CHANGING ECONOMIC LAYOUT

Somewhat the same procedure should be followed when dealing with localities. In this connection there is a very interesting point to observe. In the old days when most of the manufacturing was carried on in the Northeast, and other parts of the country were mainly engaged in producing raw materials, a period of expansion or depression tended to follow a fairly definite course. Statistics plainly show that in the old days when the country lined up as described above, expansion or depression usually originated in the Middle Atlantic States, for example, and then spread to other parts of the country. The movement swept north through New England and into Canada, it spread toward the South and also out through the Middle West, reaching the Pacific Coast sometimes as late as six months or longer after the initial appearance in the Northeast.

The economic layout of the country, however, has been gradually changing. The textile industry, for example, has spread to the eastern division of the Southern States and may possibly develop also in the western division of the Southern States. The machine tool industry has spread from the Middle Atlantic States to the Central States. The boot and shoe industry has spread from New England to the West. In the Pacific Coast States industrial developments are already in progress and promise still further expansion.

This means that the country is no longer sharply divided into the regions of manufacture and agriculture. The activities of each locality are constantly becoming more diversified. Hence, in the future it is extremely probable that there will be important modifications of the path of depression and prosper-

ity. It is logical to expect that economic movements in the future will appear more nearly at the same time in all parts of the country and that all parts of the country will tend to rise and fall more nearly in unison.

Note, however, that the fact of greatest practical importance is not whether two localities rise and fall at different times, but rather whether they rise or fall in different degrees. Past records demonstrate and present tendencies indicate that localities differ remarkably in the extent to which they participate in a boom or in a slump. At a given time it is often possible to find a list of localities which are having a degree of activity which might almost be called a boom; likewise another list of localities which are moderately prosperous; and a third list of localities which are suffering actual depression. It has been proved repeatedly that the organization which at all times concentrates its advertising and selling effort on active or semi-active markets will make maximum sales at minimum selling expense. It is a very costly and foolish policy to put the same advertising and selling pressure on all localities alike regardless of the radical difference in local conditions.

In sizing up the situation and outlook for any locality, one of the best single indicators is the trend of check transactions or debits to individual account. These figures, however, while they give a general line on local conditions, should always be supplemented so far as possible by other indicators. The concern which is selling hardware will find it useful to study the trend of local building permits or contracts awarded; an organization selling envelopes should watch tendencies indicated by the statistics of postal receipts. Movements of newspaper advertising are a very useful guide to

local conditions as they affect the sale of many lines of merchandise.

THE BIGGEST JOB IN BUSINESS

During the past decades, the big man in business has been the director of production; but during the years ahead, he will be the director of distribution. Production has made tremendous strides; but distribution today is no more efficient than it was fifty years ago. Distribution in 1924 is practically where production was in the days of the hand loom.

This was one of the fundamental facts of business which was especially emphasized by the late Dr. Charles P. Steinmetz. Most of us think of Dr. Steinmetz as a great engineer and scientist; but those who were privileged to know him personally realize that he would have been entitled to immediate recognition merely by his penetrating and farsighted observations on business. Dr. Steinmetz forecast great changes in methods of distribution. He regarded the efficiency of distribution as one of the most important problems before the world today.

A business man commenting upon the subject remarked:

We have wonderful factories, mills and shops, but our distribution methods are relics of antiquity. We are *making* by machinery but *marketing* by hand.

The following figures on page 156 were published in *Commerce and Finance* and credited to Mr. Emil O. Jorgensen, who obtained them from the 13th Annual Report of the Commissioner of Labor at Washington, 1898, Volume I.

From these figures it is plain that production has made amazing strides. But even these statistics do not tell the whole story. We have witnessed a succession of distinct steps. The first great change was the evolution from hand work to machine work. The

ARTICLE AND QUANTITY	HOURS REQUIRED BY HAND WORK	HOURS REQUIRED BY MACHINE WORK	RATIO FAVORING MACHINE
Men's boots (100 prs.)	1,486 40 min.	154 5 min.	9-1
Women's shoes (100 prs.)	1,025 20 "	80 22 "	13-1
Cotton sheeting (500 yds)	5,605	52 45 "	106-1
Cotton thread (100 lbs.)	2,895	39 17 "	74-1
Cotton hose (12 prs.)	488	1 44 "	279-1
Woolen mittens (144 prs.)	1,030	15 25 "	66-1
Woolen skirts (12 prs.)	240	3 11 "	76-1
Brussels carpets (1,000 yds)	4,047 30 "	509 1 "	8-1
Butchers' knives (144)	708	24 18 "	29-1
Milk pans (144)	72	2 18 "	31-1
Laundry soap (25,000 lbs.)	432	21 37 "	20-1
Pine boards (100,000)	16,000	272 44 "	58-1
Marble slabs (25)	6,000	11 10 "	539-1
Iron pipe (100 ft.)	84 22 "	4 47 "	18-1
Bolts (500)	143 51 "	8 37 "	16-1
Nails (20,900)	236 25 "	1 49 "	129-1
Iron screw posts (10,000)	1,250	18 "	4,098-1
Lead, paint (100 gals.)	383 20 "	22 18 "	17-1
Hemp twine (500 lbs)	382 8 "	3 12 "	119-1
Hammers (12 doz)	1,020	38 3 "	27-1
Plows (10)	1,180	37 28 "	32-1
Pitchforks (12)	43	3 8 "	15-1
Average..			252-1

second change has been the evolution from machine work of the early type to the modern automatic or semi-automatic machine.

Will there be further radical advances in the efficiency of production? I have talked with many manufacturers of equipment and they tell me that in spite of the spectacular results already obtained, these accomplishments are but the beginning of the development of mechanical wonders for the increase of efficiency. Moreover, in this same general connection, it is important to consider the well known but intensely significant report on *Waste in Industry* by a Committee of the Federated American Engineering Societies in co-operation with Secretary Hoover. The survey covered over one hundred plants representing such industries as building, clothing, boot and shoe, printing, metal trades, and textiles.

WASTE IN INDUSTRY

The committee found the following four aspects of waste in industry:

- (1) Low production caused by faulty management of materials, plant equipment, and men.
- (2) Interrupted production caused by idle men, idle materials, idle plants, and idle equipment.
- (3) Restricted production intentionally caused by owner's management or labor.
- (4) Lost production caused by ill health, physical defects, and industrial accidents.

The waste was appraised in points, the maximum of which was 100. As no plant is or could be entirely wasteful, the number of points assigned to any plant must be less than 100. The following was the result:

<i>Industry Studied</i>	<i>Waste Expressed in Points</i>
Men's clothing manufacture	63.78
Building industry	53.00
Printing	57.61
Boot and shoe manufacture	40.93
Metal trades	28.66
Textile manufacture	49.20

Think what the above figures mean. Their average is about 50. This implies that merely by elimination of waste, much of which is readily preventable, the output of our existing plants could be decidedly increased. Remember that this enlargement of output would be without any increase of plant and equipment, merely by utilizing more intelligently our present facilities. Nobody can doubt that during the years ahead there are going to be persistent efforts made to eliminate this waste.

We shall have two influences working hand in hand. There will be further mechanical and technical improvement of equipment and machinery, and the improvement of administrative and economic efficiency.

Summarizing the situation and outlook with reference to production, we can say that during the past fifty years the efficiency of our factories has increased hundreds of times and that the years ahead will witness equal or greater increases than in the past. The past growth and the even greater future growth of production almost staggers the imagination.

A study by the United States Chamber of Commerce indicates that fully 25 per cent of all the effort, time, and money expended in American factories is wasted because of the needless varieties of sizes, styles, and models. The movement toward simplification, which was so active during the war, tended to subside somewhat after the war; but there are signs of a revival of interest in the subject. This is some-

thing which should receive especial attention from directors of sales and advertising. They are the ones who in many instances have been chiefly responsible for needless variety in sizes, and styles. Against his better judgment the production manager has often yielded to pressure from the sales and advertising departments and has "made to sell instead of to serve."

One of the students at the Babson Institute is connected with the rubber industry, and in discussion of the subject he gave the following illustration of the increased efficiency of production by present-day machines compared with machinery of the past. In the old days, he tells me, smoke sheets rubber was received in bundles weighing from 200 to 275 pounds. These consisted of separate sheets of rubber laid one on top of the other and averaging one-eighth inch in thickness. In the summer the rubber sweats and in the winter it tends to get hard. The sheets become stuck together and have to be pulled apart. This work was exceedingly expensive and was very hard on the laborers, especially on their hands. To do the work there was introduced the hydraulic knife, which in one motion cuts these bundles into six parts so that today two men with the aid of this machine can do as much work as six or eight men could do before. Where in the field of distribution can you find parallel cases of this kind, where two men are today doing the work of six or eight in former years? Indeed, in the field of distribution you are more likely to find cases where six or eight men today are doing the distributing work formerly requiring only two.

The industry has also made interesting developments in conveying systems. This has made it possible for a few men today to do the same amount of work as required many men to do previously.

Likewise the present tire machine as compared with the old method of putting each ply on by hand has increased the efficiency of production by over 100 per cent.

Concerns making automatic machinery for sealing and labeling bottles report that one sealing operation (which by hand labor produced only 28 units per minute) produces by machine 120 units per minute. In labeling, hand operation will give about 28 units per minute, while machine operation will give from 85 to 110 units per minute. Figures on wire drawing operations show nearly a six-fold increase in efficiency by the replacement of hand labor with automatic machinery.

The mere recital of such examples as the above, which could be almost endlessly multiplied to cover nearly the whole range of industrial activity, brings home the sharp contrast between all this progress in production and the lack of progress or even the backward movement in distribution.

DISTRIBUTION OUTSTRIPPED BY PRODUCTION

A few years ago there was made a very elaborate survey by a joint commission of the Senate and the House, the so-called Anderson Report, the chairman of the Commission being Mr. Sidney Anderson, Representative from Minnesota. To the secretary of the Commission, Mr. Irving S. Paull, considerable credit must be given for this great work. Quoting from the report:

In earlier times there was no problem of distribution because people lived simply and produced their own foodstuffs, clothing materials, and found fuel and materials from which to create shelter close at hand. . . . Pioneers traveled into new country and established communities and developed resources. Railroads were developed; goods were transported and time and distance became factors in the relations and

transactions of men. . . . Traders and merchants facilitated the exchange of commodity and surplus for comfort. Travel became a matter of comparative ease and man traveled far to display merchandise, while the resources of a town were converted into new wealth with which to purchase greater comfort, convenience, and opportunity. The standard of living constantly advanced and an ever increasing proportion of the population entered the fields of industry, commerce, and finance. . . . Inventive genius perfected machines to relieve more and more hand labor and to produce goods in greater volume. . . . The consumer came to expect unusual service and convenience as a matter of course, and finally to demand more. Each new service and convenience drew additional people into the activities of distribution. . . . More and more facilities were created, more and more people were engaged in a constant upbuilding of expense, until we have now reached a point where *it costs more to distribute and serve than it costs to produce*. Commodity values are lost in a maze of service costs, and the time has come for a consideration of the fundamental problem and the economic distribution of the absolute essentials. The Commission is convinced that the problem of distribution is one of the most important economic problems before the American people.

Another significant quotation—the Commission describes its statistics as:

Sufficient to indicate that the processes of manufacturing have become economical and efficient, while distribution has become expensive and inefficient.

Some of the findings of the Commission have been questioned and exception has been taken to some of its detailed statistics. No quibbling or hair-splitting, however, can overturn the central proposition which this survey brings out: namely, production has outstripped distribution.

It is significant to note that taking the figures covering a variety of lines, such as bread, corn flakes, rolled oats,

clothing, shoes, etc., and taking a pre-war year, a war year, and a post-war year, production and distribution costs average just about fifty-fifty. It seems almost incredible that out of the dollar the consumer pays for goods only fifty cents represents the value of the goods and half his money goes for the expense of distribution.

There is another way to approach this important subject, and that is through the Census of Occupations. As nearly as can be ascertained, persons occupied in trade and transportation constituted about 15 per cent of the total gainfully employed thirty years ago. Today the percentage has probably risen to nearly 20 per cent. The change seems small, of course, but I regard it as extremely significant. It shows a trend in exactly the wrong direction.

With only 20 per cent of occupied people engaged in trade and transportation, it might appear that after all distribution is being handled pretty well; but bear in mind that these are merely two of the Census classifications that represent distributive occupations. The building craftsman who is putting up a retail store or wholesale estab-

lishment is not classified by the Census Bureau as connected with distribution; but really this is where his energy is going. The people who are making cash carriers for stores or adding machines for wholesale establishments are really engaged in distribution, although classified as manufacturing. Moreover, there are many other categories such as commission men, brokers, etc., all of which will be found connected with distribution. I believe that if all these innumerable complex relationships could be traced out, it would be found that occupations split in just about the same proportion as costs, namely fifty-fifty between production and distribution.

The following statistics start with 1849. We show first for each available year the number of wage workers. Then we show the corresponding value of manufactured products. Finally from these two sets of figures we get for each reported year the value of products per wage worker. Note the tendency of production per worker to increase.

It is true, of course, that the Census reports production in terms of dollars. Hence changes in the commodity price level play a part.

FACTORIES AND HAND AND NEIGHBORHOOD INDUSTRIES	WAGE EARNERS (AVERAGE NUMBER)	VALUE OF PRODUCTS	VALUE OF PRODUCTS PER WAGE EARNER
1849 (census of 1850)	957,059	\$1,019,106,616	\$1,065
1859 (census of 1860)	1,311,246	1,885,861,676	1,438
1869 (census of 1870) (gold val.) . .	2,053,996	3,885,860,354	1,848
1879 (census of 1880)	2,732,595	5,369,579,191	1,965
1889 (census of 1890)	4,251,535	9,872,378,843	2,204
1899 (census of 1900)	5,806,143	13,000,149,159	2,450
Factories, Excluding Hand and Neigh- borhood Industries:			
1899 (census of 1900)	4,712,763	11,406,926,701	2,420
1904 (census of 1905)	5,468,383	14,793,902,563	2,705
1909 (census of 1910)	6,615,046	20,672,051,870	3,125
1914 (census of 1915)	7,036,337	24,246,434,724	3,446
1919 (census of 1920)	9,096,372	62,418,078,773	6,862

Even with allowance for change in prices, however, there has been increasing output per worker. The problem of how to secure distribution for this increasing output is steadily becoming more urgent.

IMPORTANCE OF SALES DEPARTMENT

Everybody who has ever been connected with a business organization realizes that the most critical element in business is sales. It is well enough to arrange production programs and factory schedules, but unless the sales department can bring in the requisite volume of orders, the best-laid plans are totally upset. There has been a great interest lately in budgeting systems. None of these systems are any better than the sales forecast on which they are based. If sales can be forecast correctly, a fairly rough estimate of most other items will suffice; but if sales are forecast incorrectly, then all the other fine figuring on materials, payrolls, etc., is nothing but waste paper. It is the forecast of sales that determines not only production and personnel policies, but the financial management of the enterprise.

At the beginning of this paper, I advised the sales manager to study the work of other departments. I cannot close without an earnest appeal to all

other executives in every organization to take an intelligent interest in the sales problem. This does not mean unwarranted intrusion on the sales manager's activities, but rather a sincere attempt to appreciate his work and give every possible co-operation, realizing that the sales department is the power house which keeps the whole organization going.

Of all the forward steps which have been proposed for increasing the efficiency of distributions, the most important of all is the one which is the subject of this paper: namely, the study of business trends, movements, and forecasts. Many of the various measures which have been proposed from time to time are mere details; but this study of business trends, movements, and forecasts is basic and fundamental. There are many important things for the distributor to know; but the most important of all is to know the trend of business conditions; there are important things for the distributor to do, but the most needful of all is that he *use* rather than *buck* the great trends of business. Hence in conclusion I urge the directors of sales, advertising, and credit to study every available aid that will help in interpreting and forecasting these great fundamental business movements.

The Truth-in-Advertising Movement as It Affects the Wealth-Producing Factors in the Community

By H. J. DONNELLY, JR., B.Sc.

Secretary, National Vigilance Committee

WITH the development of business as a science, there arises in the mind of the business getter a realization of the need for meeting growing competition with new ideas in marketing and distribution. The business man does not expect his sales to increase of their own accord, but realizes that there must be some stimulus to increase the consumer's demand for a particular product or service.

The rise of modern business and modern business methods has seen the development of a group of business builders, the logical and natural evolution of printed salesmanship from an embryonic stage into the capacity of a scientific dispenser of a business message.

Modern advertising has become a powerful force that is hardly reconcilable with the old bally-hoo type of publicity known to a former generation and which included all the evils known to the profession. Still, it has been a healthy growth and we have seen the ugly duckling nursed through all the handicaps of childhood until today, while still susceptible to some of the mischievousness of youth, it stands forth a finished product, a recognized profession symbolizing an absolute business necessity.

Advertising is no longer centered in the idea that a picture of a pretty girl is an indispensable necessity in the creation of attention value, regardless of whether the product advertised be automobile tires, canned goods, or hardware. No longer are the cheap, tawdry tricks of the trade needed or

countenanced, although questionable sales, misdescriptions, misbranding, and many other misleading characteristics continue in use by some with the attendant evil result on legitimate business.

ADVERTISING AND GOOD WILL

Advertising today is a promise of business performance. It is a creative agency, constructive in its nature, the interpreter of business ideas. As an all-important element in distribution, it expresses the personality of the advertiser, his hopes and his desires. In its form it is simplicity itself, with no complicated machinery to become involved, provided, however, this simplicity is expressed in terms of Truth. If friction in the form of untruths, exaggerations, and frauds creeps into the scheme of things, there is likely to arise a depreciation of that most valuable item of business—good will, the keynote of all selling success and the foundation of all righteous and legitimate effort. Upon good will are built sales and profits, and we find that confidence and good will are closely allied. Where confidence through untruthful and fraudulent advertising is defiled, good will is destroyed. The Golden Rule must be preserved in all business generally and in advertising, the builder of good will, particularly. In no better way can the cash drawer value of confidence be protected than by demonstrating to the public that advertising promise checks with business performance.

In this connection, it is not difficult to understand that good will, an ab-

stract, incorporeal quality, built and preserved by legitimate advertising, is the basis of modern business success. I intend to show how this force has been prostituted by advertising untruths and the steps that are being taken toward the protection and preservation of it. I intend to show further, that there is a real need for an organization such as the Associated Advertising Clubs of the World.

THE TRUTH MOVEMENT

Recently an editorial appeared in *Advertising and Selling*, commenting on the effect of Truth. I present it here, for it paints a most adequate and pleasing picture:

Why Truth?

The most beautiful thing in the world is Truth. A woman may rouge divinely, bow her lips into a Cupid's caress, cream to sweet innocence the dark shadows under her eyes, lure with the sophisticated lure of assured experience.

And once the illusion is pierced—a punctured bubble!

There is no comeback when a surface glitter is rubbed away.

But Truth—it may be naked. It may be clothed in silks and satins. It may be torn apart, misunderstood, attacked on all sides. Yet it remains, fundamental. Anything to its detriment must fade away in the light of facts.

One incorrect statement will practically kill the chance of any product with those who know better. It is instinctive to reason, "if unreliable in one thing—beware."

There is nothing, absolutely nothing, that will make us buy and be satisfied excepting confidence.

Confidence, buildable only upon truth, is the golden key to sales.

This editorial is an echo of the sentiments voiced in a resolution adopted by the Associated Advertising Clubs of the World in convention at Baltimore in 1913, when it became evident that there was a need for an organization to

patrol the avenues of paid publicity, keeping it free from the evils and nuisances that were creeping in, in the forms of untruths, exaggerations, and frauds. That resolution said in part:

We believe in Truth, the corner-stone of all honorable and successful business.

. . . . We believe there should be no double standard of morality involving buyer and seller.

And with the adoption of that resolution, there came into active being the National Vigilance Committee and its affiliated Better Business Bureaus, an integral part of the Associated Advertising Clubs of the World. Those present at that convention in Baltimore have seen the scientific evolution of advertising, have seen the ranks of the Truth-in-Advertising Movement swell until today 314 advertising clubs and 25 affiliated associations and departmentals are included in the Movement that represents 30,000 advertising men.

Since 1913 the Vigilance Department has developed from a staff of volunteer workers supported by only a handful of memberships into an organization that is supported by more than one thousand of the country's largest and most representative business firms, with a paid staff of more than a dozen executives. The local vigilance work has progressed by leaps and bounds until today there are in active operation forty Better Business Bureaus in the principal cities of the country, supported by the leading business concerns of the community and operated by a paid staff. More than \$500,000 is being spent yearly for the sole purpose of protecting advertising, building up public confidence in advertising and in ferreting out frauds and fakers from this field; an insignificant sum when compared with the total yearly investment in advertising. Only recently one large manufacturing concern appropri-

ated \$12,000,000 a year for the purpose of presenting its message to the public.

THE MOVEMENT AND BUSINESS

Every branch of organized business is represented in the movement for Better Business methods and it is a well-established premise that the movement is of great importance to the entire business world.

Production and marketing, the two arms of business, are affected seriously by the fraudulent and misleading advertising menace, for we have found advertising to be the keystone of these two correlated elements. If public confidence in advertising is destroyed or weakened by untruths, the whole industrial structure rests upon a shaky foundation. Bankers, manufacturers, merchants, farmers,—in fact all classes are affected, as I shall presently point out.

It must be understood that honest advertisers are legion, but often such advertisers err, or are perhaps overzealous in their efforts to present their message. Should such mistakes be the cause of public indictment or should efforts be made to rectify such conditions? Thousands of dollars may be involved in a legitimate company whose advertising may be subject to question, and in its efforts to promote Truth, the Movement often secures a correction of the mistake when not maliciously intended rather than be the cause of the concern's downfall, thereby building confidence and creating another adherent to honest advertising.

Only recently a reputable mail order house was found to be engaged in serious malpractices in their advertising. Investigation by the National Vigilance Committee showed the presence of misdescriptions, fake testimonials, and exaggerated value claims. The president of the concern satisfactorily convinced the Committee that such

practices were no fault of his own, but were due to circumstances over which he had failed to provide supervision. Rather than publicly expose the concern's methods through its own organization, thereby causing loss of confidence and business, the Committee secured from the advertiser a promise of reform and required the concern to issue a letter of retraction, apologizing for the discrepancies and offering a return of money to those who had been misled. This retraction was sent to the concern's entire mailing list—more than a quarter of a million names—and forms the basis of the company's irrevocable promise to adhere strictly to the truth in the future.

In a case of this nature, and there are hundreds of similar ones, the Movement is directly assisting a producer of wealth to correct mistakes and misconceptions that may in the future act as a boomerang, dulling the pulling power of his publicity.

BUILDING CONFIDENCE

The Committee has but one aim, the building of public confidence in advertising in order that the advertising dollar may mean one hundred cent's worth of printed salesmanship; in order that the reader may believe and buy without sneeringly tossing the advertisement aside with the comment, "Just some more advertising bunk." Briefly stated, the purpose of the Movement is to create a maximum of public confidence in advertising by making all advertising trustworthy.

In visualizing the goal of its ultimate effort the Association must necessarily engage in a number of correlated activities. In order to build confidence it must protect the public and endeavor to keep down the total of losses. This it does through the National Vigilance Committee and the Better Business Bureaus, by means of a "Before you

Invest—Investigate” service; an information service to individuals, chambers of commerce, other civic organizations and publications; in addition to its exposures through newspapers and other means, of fraudulent enterprises. In this way fakers find it difficult to operate and because of the obstacles set up the proposition is often abandoned shortly after its inception.

Where such methods do not achieve the desired result, prosecution is resorted to either directly or through the various agencies with which the Truth Movement co-operates. It must be understood that only a small percentage of the work of the entire organization has to do with prosecution, indicating that while in many cases it is of direct and substantial assistance to the legally constituted authorities, the Movement accomplishes results that such authorities cannot hope to obtain. The greater part of the vigilance work has to do with a frank and open discussion of questionable statements with an advertiser, thus obtaining an elimination of misleading characteristics, at the same time making another friend and ally of the movement for Truth.

Then again, the active co-operation of newspapers is part of the daily routine, and many papers are governed in their acceptance of advertising copy by the facts set forth by the Truth Movement. In harmony with the educational efforts of the Movement many publications refuse certain classes of advertising and some even go so far as to guarantee every stickful of advertising appearing in the publication. It is not at all uncommon to find a reliable publication making a cash adjustment of a complaint registered by someone claiming to have been defrauded through an advertisement appearing in the paper. Only recently an African reader of an American magazine was given a check for \$35.00 by the publica-

tion, representing the amount lost by the reader in a fake song poem scheme that was advertised in the magazine. In this case the paper received less than \$5.00 for the insertion of the small classified advertisement. Such a policy undoubtedly makes for continued subscribers and is a procedure that has its value in increased circulation.

Practical. Definite. Helpful. As far as words can describe, these words tell the story of a service which has been aggressive and fearless, while constructive and co-operative in its relation to each class of business.

THE RIGHT TO ADVERTISE

We believe that advertising is an instrument through which the public is acquainted with a product or a service. The right to advertise is not an inalienable right. It rests upon a franchise extended by the public and withdrawn when public confidence is betrayed. It is an instrument whose use should be encouraged by those who have a legitimate message to present in a truthful manner. The fact that the 1924 convention of the Associated Advertising Clubs of the World was held in London is proof in itself that advertising is too great to be localized. It belongs to all races and creeds—it belongs to the whole world. It is an excellent weapon for combating the menace of the faker, as has been illustrated by its growing use by the financial field. It was at one time considered an unethical practice for a reliable financial house to advertise and as a result, fake promotions, stock jobbers, bucketeers, and other parasites of finance found the gate wide open and stepped in and took possession of the investor's funds by means of sensational literature offering unheard of and impossible returns.

They took, and continue to take, millions out of the pockets of the investing public, and business that would ordi-

narily have accrued to legitimate financial houses is lost, not only through the loss of regular business, but by means of the barrier raised by the slogan of the faker, "All brokers are crooked and Wall Street is a menace." By assuming a disinterested attitude toward advertising, legitimate finance was permitting an injustice to be worked on a public that had no means available of determining the true facts.

Today advertising plays an important part in the marketing of legitimate securities just as it does in the sale of groceries or other commodities, and the public is becoming educated in the selection of worth-while investments, avoiding those fairies of finance that offer fabulous returns or who have a sure way of "beating" the stock market. As evidence of the growing respect of the financial field for advertising, it is interesting to note that the Investment Bankers' Association reported that \$40,000,000 was spent in 1923 in advertising. Furthermore, the sale of millions of dollars' worth of public utilities securities to individual users, the development of the customer ownership plan, has been made possible by means of advertising.

Not only does it believe that the use of truthful advertising should not be restricted, but the Committee contends that the practice of using disparaging statements in advertising concerning a competitor should be avoided. Advertising is a powerful instrument for good and should not be used as a weapon by one advertiser against another. Time after time the National Vigilance Committee has been called upon to act as a mediator in a dispute between two advertisers who have carried their battle to the point of using the printed word in casting aspersions on one another. In many instances, the transgressors have been brought together, the harm of such methods has been pointed out,

and an amicable settlement has been reached.

Not only does the Truth Movement correct misuse, misrepresentation, and exaggeration in advertising, but it plays an important part in the investigation and elimination of frauds that no manner of moral persuasion could possibly make right. It is variously estimated that between \$600,000,000 and \$1,000,000,000 is lost yearly by one million people through frauds in the shape of stock promotions, bucket-shops, something-for-nothing schemes, and various other devices used in mulcting a gullible public. This great loss has all the symptoms of an economic waste in that the millions that should rightfully go into legitimate avenues of trade, into home building and industry, is lost forever to the thousands of persons that can ill afford such losses. This huge loss represents approximately one-fourth of the total amount of new financing for 1923. Ministers, school teachers, widows, government clerks, foreigners, and even professional and business men form the nucleus of the class made famous by Barnum—the great American sucker.

DIVISION OF OPERATIONS

The work of the Truth forces falls into two natural divisions of business—merchandising and finance—thus including practically every known commodity, security or service. It is well to have these divisions clearly in mind when analyzing the effect of the Movement on the wealth-producing elements, taking into consideration the benefit accruing to each particular unit. The intangible, unseen, indeterminate value of this Movement has already been shown in its general activities in promoting better business methods and truthful advertising. It is already conceded that the organization helps all business by building public confidence

in business. On the other hand, individual wealth-producing factors are directly affected. It is in this phase that we are primarily interested here, a phase that provides us with a definite idea of the success of the work.

Perhaps the most direct way of illustrating the value of the Truth Movement is to present a picture of the accomplishments of the Vigilance Department in particular fields of endeavor, secondarily considering the value of such activity to the remainder of the field. Let us first visualize and analyze the effect on the financial field.

Only a few years ago it was common to see an advertisement of a promoter offering fabulous returns on an "investment" running adjacent to a conservative announcement of an established banking house offering bonds yielding 5 per cent. What chance had the latter against the appeal to the something-for-nothing instinct as exemplified in the promoter's advertisement? An advertising expenditure that brought no return—practically a waste.

The Truth Movement during its co-operation with chambers of commerce, blue sky commissions and the Federal authorities, has been instrumental in running to earth these free-booters of finance, and has done much to make it safe and profitable for the legitimate house to advertise, thus assisting in the tearing down of the barriers of prejudice against advertising that existed.

ELIMINATING FAKE PROMOTER

Perhaps the Movement's outstanding accomplishment in the field of fairy finance was the recent campaign of exposure that culminated in the sentencing of scores of oil stock promoters to the penitentiary for using the mails to defraud. At the height of the oil stock boom, an investigator of the National Vigilance Committee was sent to Fort Worth, Texas, where he accumulated

evidence of the conditions existing there. These facts were presented to the public as a warning of the cupidity of the oil stock promoter and was perhaps the first word to a credulous public that a wholesale campaign of fraud was being conducted in the oil field. Indictments and convictions of such outstanding figures as Dr. Frederick A. Cook, the Arctic explorer, S. E. J. Cox, famous as a writer of lurid advertising literature, Pat Marr, a youthful exploiter of investors' hopes, Butler Perryman, and myriads of others followed.

The famous Pan Motor case, acknowledged to be one of the greatest stock peddling schemes ever perpetrated, the exposure which brought fame to the Truth Movement, took millions from unwary investors and resulted in the sentencing of the promoter, Pandolfo, to ten years in the penitentiary. Al Bidwell of Buffalo sold thousands of shares in his Angola tire scheme. The Commonwealth Hotel Construction Company was compelled to abandon its visionary club-hotel, stock-selling plan. The L. R. Steel Company had a visionary scheme that obtained the savings of thousands of investors; James Elliott and his Business Builders disposed of thousands of dollars' worth of stock in companies now no longer heard of. Josiah Kirby and his Cleveland Discount Company obtained thousands of dollars from the public. Morton S. Hawkins with his chain of loan banks found himself in the clutches of the law, and countless others have added to the phenomenal loss to investors.

LOAN COMPANIES

The financial schemes that the Truth Movement has exposed and warned against are many and varied. The Movement has assiduously opposed the operation of hundreds of three and four per cent loan and home building com-

panies that have taken such a toll from home seekers by means of a contract having many of the features of a lottery and a gamble. It is interesting to note that the promoters of the Union Home Builders, the largest company of this kind and one of the first in the field, were recently indicted on a charge of defrauding the public. A postal fraud order declares the company's contracts to be lotteries and therefore no further business can be received by the company through the mails.

The legislature of the state of New York a year ago passed a bill prohibiting such schemes from writing contracts in New York State, and several other commonwealths have gone definitely on record against such propositions. Practically every large city and many small ones had several of these so-called home building companies that permitted the holder of a numbered contract to obtain a loan with which to build a home when his number was reached. In some instances it was shown that an individual might deposit a weekly or monthly sum for forty years before his number in the series was reached, provided the company could work out its promises—in many cases, a highly improbable feat.

What is the local result of such "loan" schemes, aside from loss of confidence and the out-of-pocket loss of an individual whose heart-strings were played upon in holding out to him high hopes for a home of his own? In the first place, the local building and loan associations and banks lost the use of such funds; a contractor or builder loses a contract; local lumber and hardware dealers lose an order; carpenters, plasterers, and other workmen lose a job, while the only item on the credit side of the ledger, appearing as the promoter's gain, is offset by his later loss of reputation and perhaps confinement in prison.

SCHEMES VARY

Other schemes include perpetual motion machine promotions, compressed-air automobile exploitations, aeroplane transportation companies, booze running expeditions, oil and mining stock-jobbing propositions, bucket shops, fake tire schemes, blind pool speculations, moving picture promotions—in fact, any proposition or invention that has merited public interest, has been used by these piratical parasites in separating the unwary investors from their money. They have taken money that would ordinarily have gone into or remained in banks to be used in home building, the development of economic resources and the building up of industry and wealth. Just so much potential force for good lost forever to the community.

However, the past few months have witnessed the exodus of many of the glib-tongued gentry from the ranks of stock peddlers and confidence men into new and greener pastures. Perhaps the peddling of questionable securities has been made so difficult and prosecutions have made such a lasting impression that some new field must be sought where a substantial profit can be had with little or no risk. Consequently we find many of our old friends offering different real estate propositions to the individual investor. Muscle Shoals lots, fig farms, various kinds of orchards, and other real estate investment possibilities are now being offered and being accepted by many who no longer feel the lure of the gilded stock certificate.

EFFECT ON SALES

A highly instructive article recently appeared in *Printers' Ink* under the title "The Blue Sky Promoter Is Stealing Your Sales."

The author of this article, from a new viewpoint, intelligently discusses the

ever-pressing problem of the relation of the dispenser of patches of blue sky to fields other than the security market. In discussing the ramifications of the get-rich-quick evil it was pointed out that fields of merchandise were just as easily affected by the menace of the promoter because the purchasing power of the person defrauded was diminished. A striking illustration of the result of such losses on sales is provided when the author shows that \$500,000,000 lost yearly could well mean 10,000,000 suits of clothes at \$50.00 each; could be equivalent to 1,000,000 tractors at an average of \$500.00 each; and the effect on individual national advertisers could possibly be measured in terms of 200,000,000 Congoleum rugs, size 3 by 6 feet, retailing at \$2.50 each.

In calling to the attention of the business man the effect of the operations of such parasites of promotion, who can only dispose of their worthless securities through advertising, *Printers' Ink* continues to lend its valuable assistance to the Truth Movement. Due credit is given the Associated Advertising Clubs and its Vigilance Department for their activities in keeping this loss down by means of its activities in eliminating the faker and educating the public to the type of scheme that should best be avoided.

So much for the effect of financial frauds on business. In passing, it is well to understand that the Truth Movement in driving out the faker is enhancing the cause of legitimate financing. It is not establishing barriers against the sale of legitimate securities. On the contrary, the Movement is protecting the development of that most important economic factor—capital—and in its efforts it accomplishes two things. First, by lending its assistance in the securing of capital for legitimate purposes in a legitimate manner by showing to the individual investor, an

important source of capital, the existence of an agency operating to protect him and to segregate for him the unworthy from the worthy financial ventures; and secondly, by exposing the illegitimate scheme and preventing a loss of capital to the individual.

PITIFUL CASES

Many heart-rending cases have come to the attention of the Truth Movement. A widow, broken in health, "invests" the proceeds of her husband's life insurance policy in a "sure thing" only to lose all, necessitating the farming out of her children to friends and relatives because of her inability to care for them. A New York physician, once gifted with a large and substantial practice lost because of his grief at the death of his son in the World War, parts with his savings of years hoping to obtain sufficient return to tide his wife and himself over the lean years until the return of his health and ability. In the files of the National Vigilance Committee, there are many pitiful, gripping letters reciting similar occurrences, a reading of which is sufficient to make an honest person's blood boil at the callousness and duplicity of the recalcitrant stock promoter and bucket-shop operator; all expressing the grief of a broken-hearted individual whose faith has been dragged through the mire of deception and who emerges with eyes closed against all legitimate effort, a living protest against the unscrupulous advertiser.

For every unworthy scheme there are dozens of worthy propositions offered as shown by the estimate that in 1923 \$5,000,000,000 was used in new financing. However, it is necessary that a close scrutiny be kept on all new modes of financing and the willingness of a financial advertiser in presenting complete details to the National Vigilance Committee or the Better Busi-

ness Bureaus is often taken into consideration in determining the legitimacy of the offering. Novel and ingenious schemes are not always fraudulent but must be carefully watched. Only recently a new type of investment was offered by a financial house of favorable repute. The proposition was a worthy one and because of its merit as an investment was able to pass the scrutiny of the most credulous with flying colors. However, soon after, there appeared an offering of a smaller financial house, based on the same idea but advertised by statements that were subject to challenge. The latter house was clearly playing with fire in its efforts to outdo the originator of the idea and it became evident that not only would the house itself be criticized, but the new method would soon be valueless, if misrepresentation and exaggeration were permitted to continue in the advertising of it. The National Vigilance Committee immediately got in touch with the offender and asked that future copy contain more accurate statements that were clear and decisive and not subject to two interpretations. In this case the barn was locked before the horse was stolen and another name was added to the list of friends of the Truth Movement.

CATCH-PENNY FRAUDS

While the marketing of spurious securities, and the offering of other types of financial schemes, is directly responsible for the loss of millions of dollars yearly, still there are many catch-penny frauds that take a heavy toll from the unwary public, although the individual loss is trifling. Such schemes, as investigated and exposed by the Truth forces, include the sale of work-at-home outfits; song poem propositions; something-for-nothing offers, and various educational propositions. The home-work artist directs his appeal to a class

of persons known as "shut-ins," who because of physical disability are unable to get out to work, yet are desirous of securing some manner of income. Promises of \$25 and \$50 weekly income are made to those persons who can paint lamp shades, embroider or knit articles of wearing apparel, who can mail out circulars, compile mailing lists, or do any of the many things that go hand-in-hand with the work-at-home proposition.

For \$2.00 an outfit of sheet music of questionable value, together with a kit of cheap mailing circulars, could be obtained from a Broadway music concern of questionable standing, who claimed that several times the amount invested could be earned by the worker. Painting outfits have been sold for \$7.50 with a promise that acceptable work will be purchased from the worker by the concern selling the outfit. However, no matter how proficient or experienced the worker may be, the company finds sufficient reason to warrant the sending of a form rejection letter, recommending a continuation of the worker's effort to produce acceptable work and further recommending the purchase of additional material.

Recently, the Committee broadcasted a report on a St. Louis concern that offered a list of buyers of farm lands. The list was contained in a stamped, sealed, self-addressed, return envelope, which could be opened by the recipient, if a payment of \$2.00 was made—otherwise, the person was under obligation, so the offer inferred, to deposit the unopened return envelope, containing the list, in the mails. In several instances, letters addressed to names of buyers on the list were returned to the sender "unclaimed."

An ingenious Canadian recently sent appeals into this country on letterheads similar in appearance to the letters used by old time liquor houses, offering

twelve full quarts of Canadian Rye ("the beverage of our grandfathers") at the price of \$18.00 for the case—nothing added or taken away—delivery guaranteed. Those gullible and thirsty Americans sending the money received in return twelve full quarts of Canadian Rye, 'tis true, but the "Rye" was rye grain, suitable as a beverage and a substitute for coffee. The performance adhered closely to the letter of the promise, in this case, but at the same time was inherently a fraud and as such was excluded from the mails by a vigilant Post-Office Department. The famous endless chain, petticoat-for-a-dime scheme, operated from Chicago several years ago, literally brought the promoters a deluge of dimes before they met their Waterloo in the form of post-office inspectors.

Countless other petty merchandise frauds—the majority of them the product of an ingenious but unscrupulous brain—have taken from the public a sum inestimable because of the aversion of the losers to complain of the loss of a small sum.

CASE WORK

A great amount of the Truth Movement's work is unseen and unheralded, especially in the handling of cases involving misleading and deceptive, as distinguished from fraudulent, advertising of some article of merchandise. Misbranding and mislabelling have long been subjects of abuse by advertisers, some unintentionally infringing on another's name; others knowingly doing so, and still others using trade terms, that in themselves are deceptive and misleading. Many local dealers misuse nationally advertised trade marks either ignorantly or maliciously in disposing of goods of inferior quality. The Truth Movement has effectively handled many cases arising regarding the infringement of such terms as "B. V. D.," as used by many merchants

in describing an athletic type of underwear, rather than a particular product of a particular company.

A campaign of prevention and cure of misbranding has been under way for some time, with the Truth forces co-operating with the Federal Trade Commission. Misleading trade-terms that are not descriptive of the goods so named have been particularly prevalent in the textile field. Beginning with the famous decision of the Supreme Court in upholding the ruling of the Federal Trade Commission in the Winsted Hosiery case, there has been a gradual diminishing of terms that describe a type of fabric of greater quality than the material contained in the product so named. The National Vigilance Committee more than a year ago conducted a research into misleading textile names from the public's standpoint with the aid of the Research Department of the New York University. The findings were compiled into a booklet and distributed to manufacturers, jobbers and retailers, as a guide in the future coinage of trade names.

In many cities where Better Business Bureaus are in operation a particular code of branding is in effect in the various fields of merchandise. A number of Better Business Bureaus have secured the co-operation of local fur dealers in qualifying such terms as "Hudson Seal" and "Sealine" with a true description, such as "Dyed Muskrat" or "Dyed Coney."

For several years an active campaign has been waged against the mislabelling of furniture, both finishes and veneers being confused with or passed off as solids. Woods different from those mentioned in advertising have been found in the products of some offenders.

COMPARATIVE PRICES

Values and prices when used as comparisons have been greatly abused and

at one time it began to appear that comparative prices or values would lose their usefulness. A number of large retailers of national reputation have ceased entirely the use of comparative figures, while in the majority of Bureau cities a merchant is required to use only the last marked price of an article in comparison with the present reduced prices. In many Bureau cities comparative values are only used when the value given an article is indicative of the price at which several other stores in the vicinity are selling the same article. It is the belief of the Truth Movement that if a legitimate saving is effected or the article is worth more than the price asked, then the public should certainly be given the privilege of ascertaining the true facts rather than have their judgment influenced by the enthusiastic opinion of the seller, that a \$25.00 article is worth \$100.00. In such cases, those that come to buy often remain to scoff.

So much for a recital of just a few of the activities of the Truth Movement. As previously shown, the work affects every branch of business while certain additional pressure may be brought to bear on particular fields at particular times. At one moment an intensified campaign of ridding the tire industry of the "gyp" tire dealer may be underway; at another time a campaign against dispensers of hand-me-down re-covered mattresses may be in full blast; fake batteries and battery solutions may be under intensive investigation; questionable correspondence schools may receive our concerted attention or the movement may be ferreting out fake medicinal preparations or cures.

The effect on each field is clearly discernible and the reputation of legitimate concerns is kept clean from the smudges of the "gyp" operator and questionable advertiser. Representatives of all lines of business are inter-

ested in the work of the movement, lending all their facilities to the promotion of Truth. A large Detroit department store has a standing offer of a reward to each employe calling to the attention of the management any advertising statement that differs from the standards adopted by the concern in a pamphlet issued to all employes. The trustees of the National Vigilance Committee include men of national repute in their particular fields while the advisory boards and directors of the various Better Business Bureaus are the outstanding figures of their particular line in the community. Jewelers, newspaper men, bankers, hardware dealers, public utility executives, haberdashers, department store heads—in fact, every line of business where advertising is used is represented in the Truth Movement.

VALUE TO RETAILERS

So far as retailers are concerned, it is interesting to note the opinion of a leading merchant to the effect that Truth work increases gross profits on sales. This dealer says:

While Truth in advertising may not reduce the expense of doing business, when merchants are anxious to swell their volume, yet it is responsible in large degree for increased percentage of profits, putting all factors into a pot and shaking them up. My opinion is that the work of the Vigilance Committee is worth at least \$10,000 a year net to us.

Just by way of illustrating further the cash drawer value of the Truth-in-Advertising Movement, the following case is cited:

The advertising manager of a large department store, where a Better Business Bureau was at work investigating and correcting confidence destroying advertising, removed to a similar position in an eastern city where no practical Truth work had been done. His advertisements failed to pull as well as

in the city where corrective work was taking place. He found that merchants in the eastern city invested more for advertising in proportion to sales than merchants in the city where advertising was safeguarded by the Better Business Bureau.

He found that a store in an eastern city, doing a business in excess of five million dollars a year, spent \$178,000 for advertising, not including trading stamps which were charged to advertising, the percentage amounting to approximately 3.5 per cent. A store of a similar class in a western city showed a sales volume of \$4,300,000 against an advertising expenditure of \$148,000, or approximately 2.8 per cent. In the eastern city, a store which had built up public confidence in its merchandise and in its services until it had won a reputation for quality, did a business of seven million dollars a year and spent \$150,000 for advertising, or a little over 2.1 per cent of its sales volume. A store of a similar class in the western city did an annual business of \$6,300,000 and spent \$93,000 for advertising, or approximately 1.5 per cent only. These are actual figures of successful department stores in these two cities. The two eastern stores spent 3.5 per cent and 2.1 per cent of gross sales for advertising, whereas the stores in the western city, where a Better Business Bureau was in operation, and where Truth-in-Advertising was a rule, found it necessary to invest only 2.8 per cent and 1.5 per cent respectively; actual proof that organized Truth-in-Advertising work makes advertising expenditure more productive.

FURTHERING LEGISLATION

Not only is the Truth Movement preserving the integrity of advertising, and not only is it eliminating fakers and educating the public to the idea that there is a Golden Rule in advertising, but it

has been actively engaged in the furtherance of legislation that has made it more and more difficult for the confidence destroyer to operate. As an example of its work, the Associated Advertising Clubs of the World was in many instances a contributing cause to the adoption of the model advertising law in the various states—a law drawn up by Harry D. Nims for *Printers' Ink* and known generally as the *Printers' Ink Model Statute*.

Better Business Bureaus and Advertising Clubs have secured many and various ordinances in their particular communities looking toward the protection of their business men from the ravages of the faker. In some communities, comparative price limiting ordinances are in effect and laws against advertising second quality goods as "firsts" are on the statute books, while in nearly every large city laws regulating the operation of itinerant merchants and peddlers are enforced. Furthermore, the Movement has been instrumental in the development of blue sky legislation to prevent the wholesale distribution of wildcat securities.

On the other hand, the Movement accomplishes its desires in the great majority of cases without resorting to the law. The legitimate advertiser, comprising more than 90 per cent of the profession, prefers to have his problems intelligently discussed in a friendly way rather than later come under the surveillance of the law.

The National Vigilance Committee and the Better Business Bureaus do not represent any one branch of business. They represent advertising, the common instrument of all business. Therefore the Movement cannot be accused of jealousy or a competitive motive. Conclusions and actions are arrived at in a fair and unbiased manner backed by actual facts. The Move-

ment's sole interest is in advertising, and the Association is in the closest possible touch with its every form and branch, some forty in number, including newspapers, magazines, posters, moving pictures, direct mail and the like. No other organization can so effectively detect advertising misuse and abuse and can take steps towards the elimination of such conditions. The organization can take a broad viewpoint, disinterested so far as a single in-

dustry is concerned, a circumstance that the faker finds difficult to make capital of in his effort to make himself out a victim of persecution.

The Movement is bringing all classes of business under the banner of Truth and is building up the idea that the public must be given primary consideration. The old adage of the common law, "*Caveat Emptor*," is thus fast giving way to the phrase, "*Caveat Vendor*"—let the seller beware!

The Modern Sales Manager and His Developing Technique

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THE use of the word sales manager in a modern sense has as its meaning, the direction of the activities in the field of merchandising, which are definitely related to selling. His developing technique implies an analysis of the historical in order to forecast development. Just a few years ago, the sales manager's position was considered indefinite as to both duties and scope, and in general more or less of a loose-end job. It is only within the past few years that any definite plan has been observed as to the qualifications and duties of the office. It seems to me that, when business began to divide its activities upon some logical basis and to recognize the interdependence of departments, at that moment of time we came to see the light as far as the sales manager and his duties are concerned. The division of business activities into those concerned with (a) finance, (b) production, (c) distribution, and (d) clerical administration, while not in itself revolutionary, did much to develop specialists in the various fields and rightfully to determine the responsibilities of each group. The use of the word "modern," then, as it refers to this field is certainly justified, and we find our problems definitely related to that which has never been done before.

The use of terms in the field of distribution could well undergo a little supervision at the hands of some impartial body so that we may avoid widespread misuse of certain fundamentals. In connection with the subject at hand, I find that certain authorities

in referring to the work of the sales manager do so under the heading of administration, while others refer to the same activity as executive in nature. But is it not desirable to understand, if we use the legal phraseology, that an executor is subject to control by rules of procedure which are already formulated by others and only the details are left to his execution, while in the case of the administrator he acts as his own initiative dictates, being responsible only for the results? With this definite plan in mind it becomes an easy matter to look at an organization and definitely decide in the great majority of cases whether the sales manager acts in an executive or an administrative capacity.

In further dividing the activities of any particular business, I find a very definite operating plan which extends from the top of the organization down, which in this manner has a board of control appointing the chief administrative officer, the president, and then in turn, with his consent, vice-presidents in charge of each of the four main divisions of the business (production, finance, distribution, and clerical). The vice-president of distribution then in turn may appoint his managers for executive work in the fields of advertising, selling, and service. There has been much said of late concerning the advisability of having the advertising function, since it is aimed at the influencing of consumer purchases, responsible directly to the sales manager. Whether this is advisable or not is debatable, but it is certain that the

advisability of absolute co-operation between the two departments is essential.

ANALYZING WORK OF DISTRIBUTION

The work of the department of distribution is therefore subdivided, as we have said, into functional activities, and each of these activities is again divided into some specialized detail. The particular work over which the sales manager has jurisdiction is then the subject of analysis. In the first place, the activities which are most necessary are those dealing with field organization, that is the plan under which the salesmen are going to operate. Secondly, a full realization of the principle of interdependence and the absolute necessity of co-operation with other activities of the business. This latter phase is particularly difficult for the average sales manager to realize. He is creative and dynamic and is inclined to feel that the business is more dependent on his activity than any other, often forgetting the place in his enthusiasm which should be accorded the factors of production, finance, and the mechanical administrative operations.

The other phases of his activities center around the work of research, both the assembling and analyzing of statistics gathered from external or internal sources. In addition he often has supervision of the clerical work connected with credit and delivery as well as the larger field of endeavor comprising the management of the sales force, the methods in use and the determination of principles and policies. This latter division is one of the expressions which admits of standardization. Principle is established when we refer to that plan which is established and unalterable. It is the generalizing idea and is opposed to the policy which is but a temporary plan,

subject to alteration as the conditions change. It is worthy of note that in addition to these functions there is a limited use of the term sales management inasmuch as it is almost solely used by large wholesale houses and producers who have established sales organizations. It has rarely been used in connection with retailing by larger concerns.

The work which deals with the statistical and clerical phases of management has been very definitely organized. Though some still believe that the personal element will be the imponderable, there is in that side a tendency to newer development and tangible results. To give a summary of what has been accomplished in the static divisions, we see that the field organizations have been carefully charted for many companies. Thus there are recognized types of procedure which depend for their effectiveness upon the amount of control exercisable over them and that these divisions are, roughly:

(1) Direct control from the central office. The selling units sent out from and controlled by that office.

(2) Direct control from the central office but with resident sales units in the various territories.

(3) Established warehouse facilities in various points accessible to proper transportation facilities and capable of operation under either of the above plans.

(4) Branch offices. Being a larger unit than the next and having considerable latitude in the manner of conducting the business in a particular territory.

(5) District offices. Much the same as the former in operation though usually on a smaller scale.

Each of the above naturally has its own organization in turn, but as we proceed to these smaller units the

manner by which the organization is affected varies with every unit. If the advertising and export divisions are under the direction of the sales department they, too, would have their activities listed under the group above.

The principle of interdependence is one which should be very carefully considered for, unless the manager has an appreciation of the usefulness, limitations, and capabilities of the other three elements, there is bound to be friction instead of co-operation. We should realize that the financial interests of the company put certain limits upon administrative or clerical work, so that it bears a direct relation to the other functions and is not disproportionate either in its receipts or expenditures. Then, too, the sales group under the distributive activities must recognize that the financial aspects demand protection in their accounts, that the matter of profits is essential, and that there is a burden put upon it to sell the goods produced.

So in the case of every other activity there must be an interdepartmental unity if a smooth organization is to exist. Not so long ago the distribution department of a nationally known concern created a demand for a product which was far in excess of the possible production. Following this, I understand, there was a thorough understanding of co-operation within the organization. In addition to this co-operation there is co-operation necessary within each specific group of activities. The distributive department must realize that if there is not co-operation in their own group, chaotic conditions will result and re-organization is then the only practical remedy. So harmony must exist between the credit, delivery, and sales divisions of the distributive department.

RESEARCH WORK

The research work of the department of distribution which is of particular value to the sales manager involves the work which is done by those in the office and deals with the static factors. It is an internal analysis. The sources of information for this work are varied, but include all government reports, including the publications of the Departments of Agriculture, Commerce, Interior, Treasury, War, Post Office, and Labor. All commission reports whether Federal Trade, Interstate Commerce or Tariff are becoming increasingly recognized as indispensable in helping to establish sound policies. Next in importance are state reports, or any reports issued by national business organizations or trade associations. Local business organizations, competitors' records and, lastly, though of most importance from the individual standpoint, the records of the business itself. In addition to these sources we have the various business agencies whose work is statistical and rendered as a paid service. Then, too, recently we have the work of the various college research groups as well as individual counsellors.

The field work or external analysis is mostly done through the sales force or trained investigators. Their methods include interviews or observations. Though not as mathematically accurate as some of the other methods, it gives some very personal or local information which would be missed if a purely statistical report was to be taken without modification.

The next phase of the work of the distributive department is one upon which there may be discussion as to whether it is even in accord with sound policy to include it under this group. The credit and delivery functions,

however, are self-explanatory as to their place and accomplishments, so that aside from the advisability of placing them under the supervision of another department there can be little discussion of their service.

It is rather important for us to realize that under any such division of activity it is necessary for the sales manager to realize the importance of each of the above phases and to know just when to get certain information and how to use it. For example, the researches may be made with the idea in view of getting a merchandising analysis, or as preliminary to an advertising campaign, or again for the planning of a complete sales campaign. In each of these cases the sales manager must be able not only to analyze the facts after they have been presented but also to direct the gathering of the data. We thus see that the sales manager has with relation to even the static and regular function of a business a definite work to do. There is, therefore, a constructive element in addition to the regular detailed effort.

APPLYING RESULTS OF ANALYSIS

With this general survey let us proceed to analyze the sales manager's development as it directly affects the intangible things over which he has control and which in all probability will mean the greatest source of development in the immediate future. This work has the establishment of certain fundamental plans as its corner stone and then the dealing with the human factor and the problems which this side of the work presents. It is hoped that this development will go far toward solving upon scientific and factual grounds those problems formerly regarded as having only individual opinions as a foundation.

In the matter of principle and policy I find that, though there is a very

definite and well-functioning research group in many institutions, there is a definite lack of organized effort directed toward an analysis of the facts which the research reveals. Statistics are not worth much as facts. They are important as they are used to indicate tendencies or to dictate future procedure. Then, too, they must be read with care. Town A may have 50,000 inhabitants, and town B may have an equal number. From a merchandising standpoint this may mean nothing. Further analysis is necessary, for the things which would affect the two towns might be very different: the kind of industry, the kinds of inhabitants, the buying possibilities involving the wealth of the population, the nearness to large cities, climatic conditions, the possible use of trains or automobiles, depending on highways in order to route salesmen, the accommodation for these men, the sources of distribution. Can any but a trained man give proper weight and value to these factors? This is the question which, when negatively answered, has opened the whole field of sales management to a new type of executive. And incidentally it has made the type of man possessing this training a better administrator than most men trained in the other divisional activities.

One case has come to my attention where a nationally known concern was spending several thousand dollars a year to create demand among a special group of people. During the years in which this expenditure was being made there was not one place nearer than four miles where the product could be bought. That their sales manager was not in accord with the advertising manager is the only conclusion which would account for such a discrepancy.

Another case shows how the sales managers themselves are not fully

cognizant of conditions. Sometime ago a number of sales managers were asked concerning governmental activities and whether they felt that these activities interfered with their work to any appreciable extent. The answer was as might have been anticipated. The government was entering into their businesses entirely too much—less control was their slogan. Less government interference was needed. But here was the rub. I made inquiry concerning what these men were attempting to do in the way of anticipating governmental action, trying to find what study they were making on the subject of economic problems and the solutions vital to the public as well as the effect they would have on their businesses, whether they knew what effect materialization of public opinion into law would have on their business. There was not an answer which could be regarded as constructive in policy or thought. There is a cry for men of vision in this field. I emphasize it at this point, for unless we anticipate the intangible, unless we visualize possible negation as well as the positive elements, we are not living up to the best which this or any profession has to offer.

Let me cite one more example of the possibility of non-co-operation within an organization. This time an advertising manager came to me and presented an advertising appropriation. What proportion of the amount should be used for dealer helps and what proportion for advertising to the general public? He, without consultation, had decided on an equal division. Upon analysis it was found that the concern in question was selling direct to jobbers and allowing them to work up the sales to the general public. His division may or may not have happened to be correct, but his method for arriving at it was decidedly unscientific.

REQUIREMENTS OF GOOD MANAGER

Let us turn from this discussion of the so-called tangible efforts of the sales manager to those which I have referred to as intangible. This study would divide itself into a discussion of the personal requirements for the man who would fill the position of sales manager, an analysis of the principles which must govern his decisions, a study of the problems dealing with all of the personal phases and, lastly, his duty of visualization.

The qualities which the manager must have naturally center around and are direct outgrowths of his duties. To mention these we find that he must be able to relate the selling policy to administration, he must know merchandising values, he must appreciate the force of advertising and the activities it calls into play, he must have the ability to direct the field activities of his force, he must realize the value of interdependence, quick organizing ability, and an appreciation of both expense and profit.

He must be a dynamic individual with mental and physical adjustments which lead to action. In addition he must have analytical abilities which directly relate to executive functions. His personality must be one which radiates energy, will, and resourcefulness. This can only be gained by one who has had a wide experience and has allowed his plasticity to take advantage of every observation or bit of information which it is possible for him to comprehend and adopt. With tact this must be transmitted to his subordinates, and it must have within it the understanding of the public. This involves due appreciation for the value of good will as a creative sales force and of such tendencies in the direction of standardization as are noted in all industrial lines. All this is necessary

if the manager is to have a proper background in the light of which he is to judge cost data related to territories, the product, compensation plans, relative profits, and individual worth.

VALUE OF VISION AND IMAGINATION

With the above stipulated characteristics it is not only natural but imperative for him to think in terms of principles by which he must be governed. This affords him a definite technique for answering problems which are related to both the subjective and objective aspects of his duties. When a man is presented with the following problems, what shall be his guide? Shall his staff be under centralized or divisional control? Shall there be a standardized sales talk? Shall we standardize sales activity and depend on a law of average? What type of men shall we employ to sell? How shall we pay them? Even a strong personality free from all interference must face such questions with a general plan. He realizes that his employer wants the goods sold. His sales force hear objections so often, they come to believe them. How to correlate the two and supply the right initiative is the problem. This means, as I see it, a visualization of the future and a meeting of all questions with such thoughts in mind. He is always governed by the urge of profits legitimately made under terms of satisfaction and equity to both producer and consumer.

Let me pause to note one development which indicates the idea of visualization and maximum returns. Candles were used for lighting purposes prior to the time when gas and electric lights became the accepted mediums for illumination. A shortsighted policy would have relegated the candle industry to the realm of forgotten things. But a new aspect arose: the

use of candles for decorative purposes. From a state of development involving emotion, environment, and utility appeals, the order was again reversed to the financial gain of those interested. In time silver and crockery candlesticks were ordered and a new industry really built around this idea. So this idea must be powerfully presented with an imagination and a vision which should underlie every sales manager's mentality. He must not be willing to accept the point of view which immediacy has thrust upon him, but rather attempting, through persistent energy, with authority, to establish the new thought requiring time, effort, and vision. The next activity of the sales manager is the personal aspect which forms by far the most difficult part of his work, for it has as its material human relationships. Every phase of sales effort which involves the salesman presents the practical aspect involving human problems and their possible solutions.

ELIMINATING INEFFICIENCY BY ORGANIZED STUDY

Is there a developing technique at this point of contact? This indeed is a pertinent question to be answered only by an analysis or a review of the various activities attempting to shed light on the subject. Problems of the selection, training or discharging of salesmen, their field activities and their relation to the house and to the manager, are all questions upon which much is being said and more done.

The psychologist is attempting through job analysis and individual tests to reduce the possibility of wrong selections. But recently I have had presented to me a questionnaire in which a psychologist hopes to determine the fitness of accountants. The sales field has had several such inquiries, and in two cases at least a

comprehensive plan for selection is in operation. The results are justifying themselves in a decrease in turnover among the sales force.

It may well be asked why an analysis of individuals in terms of traits, either acquired or natural, is of importance to the sales field. The business world is constantly changing and the salesman is the point of contact between that world of potential buyers and his concern. Every field as it changes tends to affect human relations; therefore, the salesman must fit into his personality those traits which will best enable him to combine his product with the changing conditions. Through a better use of tests in order to determine traits, it is the hope that society will benefit, since individual resources will be utilized to their fullest extent. The scientist is studying in his field in order to shed light upon the physical side. Dr. Kemerer has recently attracted widespread attention to his theory regarding the importance of acquired characteristics and the possibility of their being hereditary.

The services of the medical profession have been called upon in order to determine mental effects of physical tendencies. The efficiency of the human body is being analyzed relative to health in order to procure maximum efficiency for the individual as well as for the employer. Who is more concerned with this problem than the sales manager? In the matter of training schools, many have been established for study of both the product and the buyer. Classes are held and the sales force asked, as part of their work, to know their product before they attempt to sell it to the consumer. Then a study is made attempting to analyze buyers so as to combine the two phases into a logical development. This educational policy interblends principles and policy, territory and article, com-

petition and consumer conditions as no other method could do. The result is a correction of individual defects relative to these things. This realization and understanding of the factors allows the individual to pass creatively from minimum standards to a maximum. Now, urge coming from certainty and a realization of the possibilities attainable through effort, will, in the long run, react favorably on the entire administrative force. This, too, in turn, aids salesmen in their work by inciting them to be of service to customers where possible. They thus come to represent truly the policy of the concern as well as the product. Resulting good will is of inestimable value to the company and the advice of value to the customer.

PERSONNEL WORK OF EXECUTIVE

The increasing importance and seriousness of modern sales management is necessarily developing a new type of man to meet these higher standards. It is becoming increasingly important that his background include that kind of mental training which will enable him to make judgments in accord with human situations. Present systems of human nature analysis popular in form and content attempt to reduce the human factor into systems of thought rather than a discussion of scientific findings. But there is no royal road to learning; short cuts are not to be found here.

To really interpret, the executive himself must go through a long, tedious process of learning to get at the deeper scientific truth involved. A knowledge of the principles of psychology, philosophy, biology, and anatomy, and the recognized sciences which delve into the human side of existence are necessary. Even then he will emerge with a keener appreciation of the complexity of humanity and at the same time a

recognition of the simplicity of response. It would be well to remember that chemists and physicists have made their contributions to the fields of production. We have proof of this by the system which has been established by Mr. Taylor. The worker's welfare as a whole has been given considerable attention. The sales manager's activity in the matter of personnel study should be regarded as a possible field for future development, and progress will undoubtedly keep pace with the amount of energy expended.

Inspiration, then, becomes a tool in the hands of sales managers, and not a mere word. It is with conscious intent that he uses it as a material urge in case of prizes to some types or to another as a mental urge in a simple heart-to-heart talk. His correct use of scientific factors may mean the difference between success or failure of the individual. The sales manager is under constant compulsion to analyze his staff to determine the best possible appeal, always realizing his influence on the individual for good or evil. So increased knowledge is increased responsibility and increased opportunity for social good. The confidence of salesmen is seen as an essential—not merely as a desirable thing. The sales manager must be sympathetic. Everyone in executive and administrative work realizes that minor ailments frequently put the individual into an emotional state entirely unwarranted by the conditions. A mountain is made out of a molehill. To remove the cause releases power in the community which means more effort and more satisfaction.

OUTSIDE AGENCIES AS MEANS TOWARD DEVELOPMENT

The sales manager must make an analysis of the value of various agencies as they affect his organization. Let us

make a study of the sales convention for example. It may be that a convention would simply add fuel to a dissatisfaction already brewing over price, credit, or salaries. On the other hand, we must consider the value which is to be gained by the loyalty of the selling force. Troublesome points may be cleared up in a convention, and if nothing more is accomplished than having this meeting a clearing house for conflicting ideas and difficulties of operation, it would be a splendid thing. Then, too, a more perfect opportunity to inspire the sales force could not be imagined. It is the psychological moment for a sales manager to get his dynamic vision to his men. It can be readily seen that in this way a bigger field can be covered than would be possible in the case of individual or group meetings for sales purposes. In larger groups it is impossible to get individual cases considered. So smaller groups are necessary for such considerations.

Sales manuals, when they are used to express the ideas or ideals of the sales manager, are very important educational factors. It should be the aim of a manual not to cover points already in the consciousness of the salesmen and thus put a premium on a disregard for instructions, but rather to make the standardization of the sales story a real, live, moving thing. This naturally involves on the sales manager's part a feeling that there is a right and a wrong way of doing and thinking about individual problems.

The mental appeal when dealing with men is one of the most difficult problems for any manager. Each man presents a problem which differs from every other. Some men bubble with enthusiasm, others seem to blunder at every turn. The sales manager's new problem is to quickly determine men who will fit into his plans and

accurately put his decisions into effect.

FUTURE DEVELOPMENT

Sales managers are at present motivated by immediacy and self-preservation rather than scientific vision with control based in accord with it. We do not hesitate to use inventions for the reason that they were never used before. It seems unreasonable to deprecate the modern sales manager in his effort to standardize human values and to laugh at his efforts simply because we do not understand them. Present efforts undoubtedly contain the truth of future discoveries. It is not too much to expect of science that some day we may be tested for specific abilities and fill our niche in the economic realm in accord with our known characteristics. The masses are reaching forward to new standards of living. Individual life is experiencing through the activities of the distributive agencies an era of abundance, because some with imagination and vision see far enough ahead to view humanity as over and

above profits and without not to lose incentive; realizing at the same time that maximum profits require as co-existent with them, better standards for all and abundance through quantity as well as quality production.

While I do not mean to abandon criticism, for it is through criticism that we realize failure and attempt constructive building, I do mean that from the developing technique in this field we must abandon criticism for criticism's sake. Refuse to sit in the seat of the critic and prefer to put your effort to constructive use. Imagination and vision will, if given time, develop a technique which criticism cannot tear down. Therefore, let us look to the future of the sales manager's task as one filled with the possibility of development. Let those who would be pioneers realize that in this field there is a new technique developing, scientific in nature, which calls for clear thinking and right action. Profits and increased wealth will follow as by-products of this newer evolving conception.

The Modern Advertising Agency and Its Contribution to Creative Wealth Activities

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IF necessity is the mother of invention, the modern advertising agency might well be said to be the father of merchandising. Certainly, no other single factor has been so largely responsible for the development of the principles now in vogue in creative merchandising practices. Not only has the advertising agency been the creative functionary responsible, in a large measure, for the development of advertising on a national scale, but probably it has been the most important economic factor in formulating the fundamentals upon which have been built the merchandising methods that synchronize sales and advertising effort from the manufacturer's point of view.

This has not been accidental. It has been a case of necessity for the agent's existence. His "place in the sun" has been dependent upon it. And the nature of his work has given him unique fitness for the task. To begin with, the advertising agency occupies a position in marketing which makes possible experience in diversified fields, with the consequence that its efforts are based upon an exceedingly comprehensive knowledge of market conditions and comparisons. Remember, this is not statistical knowledge primarily. It is practical experience evolved from a comparison of observations of results achieved through actual campaigns, which necessarily contemplate not only every phase of marketing, but many of the financial and production problems that confront the manufacturer. Even a better reason,

however, for the creative powers of the agency has been that its peculiar type of work has attracted perhaps the largest group of capable, creative minds, who must not only apply experience to problems, but who must continuously expand their own capabilities to function effectively. In other words, the advertising agent must scientifically apply imagination to comprehensive marketing experience to continue his existence.

To comprehend the position of the advertising agency in the marketing field, it is necessary to trace the agency's development as a creative functionary. The progenitor of the modern advertising agency came into existence shortly after the Civil War. Extensive distribution was in its infancy; transportation left much to be desired; yet the development of printing had caused newspapers and, to some extent, magazines, to spring up all over the country. Geographical situations made large scale manufacturing more advantageous in one locality than in another. The manufacturer unconsciously was confronted with the problem of placing his goods in the more remote districts, while the promotive sources of consumption in those districts were at the same time in need of business to produce revenue to permit them to function.

No paper could exist even in those days merely on subscriptions. Advertising revenue was essential to dividends. Consequently, the papers began to look for methods of selling their

space and began to sell blocks of space to individuals in different states so that these men could, in turn, dispose of the space to various advertisers. There were no set rates for the space. It was simply a question of smart trading on the part of the space seller, and from this competition there developed the genus "advertising agent," who was in reality an agent for the paper.

But as newspapers multiplied, the competition for business became violent. Divergences in space rates occasioned bitter complaints and a general distrust of advertising. To keep confidence in their wares, newspaper publishers were forced to standardize their rates. Gradually the "David Harum" qualities of the advertising agent lost significance and he had to turn to other means of selling his services. What then? If space costs were more or less standardized to advantage, the contents of advertisements were not. Most advertisements were singularly uninteresting. They lacked appeal. They were devoid of ideas. So the advertising agent turned his attention to the advertisements and hit upon the idea of selling finished advertisements to the people to whom he had been selling space.

THE COPYWRITER'S BEGINNING

Here was opportunity. Few producers could write business letters, let alone advertising copy. Give a man a forceful idea about his product and he will bless you, even today. But in the early eighties when the advertising slogan was a new thought, the advertising agent had marvelous opportunities to gain reputations from witchery in words. Moreover, during the eighties great strides had been made in the engraving art. The halftone had been invented and the Ben Day process of using figured screens in connection with line drawings made possible the

reproduction of illustrations far more realistically than ever had been known before. Thus the advertising agent graduated from the ranks of the space trader to the new-found dignity of word manipulator. But it must be remembered that his bag of tricks was largely the child of his own fancy. There was no scientific basis for his appeals. But there was betterment. Advertising and sales campaigns were based upon bright thoughts. It was the day of the slogan, and the more an idea appealed to a manufacturer, the more space the agent was apt to sell. This developed a rather peculiar situation in that the agent received his remuneration from the publication as a space seller and continued to receive it, although he now primarily represented the advertiser.

This condition exists at the present day and has been violently attacked as prejudicial to the advertiser's interests. Actual experience, however, does not indicate that this has been the case. As a matter of fact, a standardized commission has given the agent a definite working basis for his business, with the result that the agency has developed into a well-knit creative organization, rather than an individual, or collection of individuals, trading on their own accomplishments. The publisher naturally provides for the agent's commission in his advertising costs so that the advertiser really pays for the service—with this very definite advantage, he pays on a recognized standard.

Where experiments have been attempted otherwise, it has been found that the manufacturer does not readily pay for intangible things—particularly for creative plans. Yet through this somewhat curious situation, the manufacturer has had placed at his disposal the most imaginative minds of the country. The difficulty, if any exists, is that many a producer has had

creative talent available, the value of which he never recognized because he was never conscious of paying for it. But it would be unfair to say that manufacturers, as a whole, have not recognized and utilized to the utmost the creative imagination of the agency man. Naturally, the development of the advertising agency has harnessed this imagination to practical methods, and the further development of the advertising agency as a recognized marketing factor has practically eliminated from responsible agencies the stigma of prejudice in favor of the publication that had the greatest space rate, and consequently the greatest commission. In any event, no method has ever been found to better the original mode of payment and the agency is so well established today that it is hardly likely that any radical change will take place. Publishers have shaped their own development so as to depend upon the advertising agency for a great deal of their national business. National or "foreign" business in a newspaper must be differentiated from retail store or "local" advertising, with which the agency has small connection. But national advertising is a different force from the local advertisement, the local advertisement usually being merely the offer of certain goods at certain values.

The copy era in advertising did not always pay. Many campaigns failed because they were based upon "blue sky" ideas rather than upon sound merchandising analysis. Advertising, as a marketing influence, underwent much criticism because of this. The agent was criticised as superficial, as unsound, as a business snake doctor. He was none of these things. His was the ignorance of the child. He had yet to learn to control the forces that he was supposed to dominate. The wonder of it is that so many campaigns

succeeded upon such rudimentary foundations.

APPLYING SCIENTIFIC RESEARCH

But in a creative field, competition necessarily must be severe, and the advertising agent, a quarter of a century ago, began to look for the causes of failure. He did more than that. He tried to anticipate these causes before he began his campaigns, and this naturally led him into a consideration of the sales department and an analysis of the marketing conditions upon which a given business rested.

Here he began to find himself. Once he realized that his work rested upon economic principles, he began to extricate himself from the morass of uncertainty. He studied; he turned to psychology and brought to it homely demonstrations that profited his client in the extreme. And his experiments proved that men were, for psychology, even better subjects than monkeys.

Today he has only partially completed his task. But he has brought to business an appreciation of the value of the fundamentals of psychology and economics. And in twenty years' time, advertising has come to rest almost entirely upon a background of sales policy, manufacturing problems, trade conditions, and consumer habits. Where these fundamentals are sound, invariably the campaign is successful—where they are not, look to these and not to the advertising.

Naturally, the scientific development of advertising is in no way complete. Indeed, it is hard to picture an exact science eventuating from a profession which is so largely affected by human frailties.

Few advertisers realize how important a part their own personality plays in the functioning of their concern in its particular market. Yet this seems an obvious statement. With the de-

velopment of marketing analysis carried so far, with the knowledge of trade and consumer habits so complete, with the thousand and one methods of observation for every change in conditions, markets, and habits, there is very little, save personality, that cannot be reduced to almost the proportions of an exact science.

It is not a difficult matter to determine the reception that the individual consumer will give to any product. Guesswork need never be applied in ascertaining how the article should be merchandised to secure the greatest consumer acceptance. The real problem lies in developing an organization that will carry out and maintain the functions that are necessary to keep the smooth flow of distribution operating from factory to consumption.

In this the advertising agent is playing an important part. He has reared the structure from which business psychology is shaping itself. From the crude skeletons of so-called investigations have been evolved scientific research methods which are almost entirely the child of the advertising agency. It was the advertising agent who first called the manufacturer's attention to an investigation of his sales territories. The advertising agent first investigated market conditions. The advertising agent first studied the consumer. The advertising agent first offered creative solutions to the problems brought to light by research. In other words, the advertising agent has been the visionary who suggests the creative idea. In most instances it has been the manufacturer who has carried forth the idea to its successful conclusion. And so it should be. The advertising agent, at best, is a counsellor; any attempt of his to execute details is simply a substitution for functions that properly belong to the producer.

The tendency of advertising and

marketing is to bring the advertising agent more and more within the scope of a professional counsellor. He must deal with underlying principles. He is the diagnostician. His general marketing experience gives him the background upon which to discuss the principal factors affecting any business; but the scope of his work does not permit of his going much beyond that. The carrying out of the details belongs to the sales department of the manufacturer. This does not mean that the advertising agent cannot spend a great deal of time upon individual problems, but it is his function to ascertain causes, to point to solutions that affect the campaign bases rather than to become a glorified executive, applying remedies that will overcome territorial difficulties in south Georgia, or laying his finger on the exact reason why John Jones can't sell the Boston Store in North Oshkosh. If he does these things, the manufacturer will soon find that he is depending too much upon his advertising counsellor to run the details of his business, with the consequence that his own departments will suffer in capability.

DEFINITE ACHIEVEMENTS

The advertising agent has contributed definite achievements to creative wealth activities. He has taught the producer the power of imagination; he has demonstrated the force of exact marketing knowledge. He has given the producer the methods that enable him to appreciate why the market in southern Indiana is apt to be just as different from the markets of eastern Massachusetts, as Peru is different from Rhodesia. He has taught the producer to gaze upon producer's problems from the consumer point of view. He has given him the philosophy of appreciation in respect to marketing methods. He has demon-

strated the value of pioneering. He has illustrated successfully the doctrine of co-ordination of all business factors. He has forced the producer to think in relative, as well as direct terms. He has supplied impersonal judgments to balance the prejudice of personal belief. He has forced recognition of the controlling forces in everyday living. And he has been a good teacher, because failure in his courses deeply affects the pocketbook nerve.

All of these contributions are intangible. They cannot be measured in dollars or pounds avoirdupois, but they are, none the less, the primary factors upon which successful marketing is based.

The advertising agent has become a functioning sales and merchandising counsel, as well as a creative planner of advertising. His creative experience proves of utmost value because it is impersonal.

It must not, however, be thought that the advertising agency's contribution consists solely of the intangible, in wise counsel, in accumulating creative experience, to be drawn upon for constructive effort. These are, perhaps, the fundamentals of his value to society, but unfortunately they are not always recognized as such. Possibly this is due to innate human stupidity which is prone to look upon the tangible as the ultimate. Too many manufacturers spend their time looking at effect rather than cause. "Results," says the manufacturing Mr. Babbitt, "are the only things I am concerned with." "Results," says the speaker at the Rotary luncheon, "are the things we wish to talk about. We have accomplished this, and we have accomplished that." So they have. But in reaching accomplishment, it is sometimes well to look for underlying causes and to remember that creative

marketing cannot go on indefinitely when the producer is affected with marketing blindness. It is the function of the advertising agency to fit clear lenses to the distorted optics of the producer, whose tendency is to be bound by the limits of his own personality.

The part that the advertising agent has played in opening the way to marketing on a vast scale cannot be overestimated. And his value in the future is apt to be even greater than in the present because the younger generation is receiving the scientific training in applying fundamentals that their predecessors could not have.

Not more than a quarter of a century ago advertising was looked upon as a mixed blessing. "Book agents, peddlers, and advertising agents—Keep Out," read the signs in the office buildings. Advertising was a stepbrother of the patent medicine—or was it a proof of human gullibility? But the present conception of advertising is radically different. It is a recognized factor in business—a necessary adjunct to the highest development of a business. It has become a science that promotes standards of living. It is the introduction to an upward aspect in life. And the advertising agent has been the chief evangelist in its cause.

It is not necessary to dwell extensively upon the part the advertising agent has played in developing advertising. The publisher can testify to that. Well over 95 per cent of all national advertising today is placed through the advertising agent. Most of the advertisements which are placed in this space are conceived and executed by the agent. Only occasionally do you find a producer who can direct the fruits of his experience into the details of an advertisement. There are exceptions and, in the aggregate, their number may be large. But then there

are tens of thousands of advertisers, and there is hardly a concern in existence now famous as a national advertiser which has not had its greatest advertising impetus at one time or another from the efforts of the advertising agent.

It is well recognized that the economical handling of detail has been worked out to the "nth" degree by the advertising agent. The functioning of research has had its beginnings with him. But research in itself is a coming profession, and it is probable that the future will see large research organizations functioning entirely apart from the advertising agency, although in conjunction with the agency's creative development.

The advertising agency has contributed in no small degree to the success of the publisher. In his search for business the agent has discovered innumerable advertising potentialities and, by pointing the path to marketing success, created national advertisers without end. The publisher has come to recognize that the agent—always allowing for his human fallibilities—serves him best by serving the advertiser best. And such famous institutions as the Curtis Publishing Company and the Crowell Publishing Company are well content to have almost 100 per cent of their business come through the agent. He not only creates business for them, but he serves another important purpose—that of the stabilizing of credits. The agent's recognition (*i.e.*, his right to receive commission) depends upon prompt payment of his bills as much as upon his advertising capabilities. Close credit supervision of relatively few agents is a godsend to the publisher, especially as he extends agency credit on almost a brokerage basis. Publishers' losses from poor credits have been very small, not only a consolation for the profit sheet but a

matter of the utmost value in the stabilizing of a business, which has no recovery value for the space that it sells.

PERSONALITY COUNTS

Many are the types of advertising agent—as numerous as the types of personality. The good survive, the bad perish for lack of business, the indifferent struggle for a livelihood that is always precarious. It is an exacting profession and the number of responsible agencies is not large, probably not more than 500 in all. Some of these are large organizations; some quite small. But agency size does not determine its competence. Both large and small agencies are successful, for both have distinct advantages. The large agency is departmentalized to a greater degree than the smaller agency, whereas the small agency usually has its principals contacting advertisers. And in a profession where the personal equation is so important, this is apt to be a decided advantage. Both types have adequate technical equipment.

After all, it would seem that personality is the major factor with the successful advertising agent. Creative ability and the background of experience in fundamental principles are the important factors that make his equipment of value. Hence the business is semi-professional as contrasted with law or medicine. But its standards of ethics are constantly being strengthened. The American Association of Advertising Agencies, which embraces practically all of the worth-while agents in these United States, has enunciated a code of ethical standards, now generally accepted by both members and non-members. This code has done much to develop harmony between agents and publishers and has gone a long way to bring to the agency deserved recognition as a creative force. Above all, it has originated a standard

of service which has done much to professionalize the business. As yet there are no entrance examinations for agency recognition, but the outlook is promising.

The structure of an advertising agency may be briefly reviewed as embracing the following factors which may be individualized or departmentalized, depending upon the size of the agency:

- (1) **Solicitation**—Securing the business.
- (2) **Contact and Service**—Contact with the advertiser through members of the organization.
- (3) **Research**—Investigation and analysis of markets, trade conditions, competition, etc.
- (4) **Planning**—Determining plans of campaign and formulating policies.
- (5) **Media and Rates**—Contact with the publisher. Investigation and analysis of media and the handling of the space contracts.
- (6) **Copy**—Planning art and illustration, writing copy, and actually producing the advertising.
- (7) **Production**—Mechanical production—including the making of illustrations, engravings, printing, electrotypes, and other details that go with the printed word.
- (8) **Forwarding**, checking, billing, handling of the ordinary routine of issuing plates and copy instructions, checking insertion of advertisements for accuracy and fulfillment of contract, and the issuance of bills and general accounting.

The advertising agency offers a career which has been taken up by large numbers of trained men. The diversity of its work has a strong appeal. But it is a business that calls for no weakling. The agency man must have creative imagination, an

analytical mind, a broad marketing knowledge, adaptability, tact, courage, honesty, and willingness to work, expressed in terms of personality. The ideal agency man is a combination of the administrative and selling types. His work begets an impersonal attitude towards general problems and he develops a professional angle towards business problems which has some little significance in the future participation of the business man in the governmental activities of state and country.

The business man seldom mixes in politics. Perhaps there are sound economic reasons for it. Perhaps he is too restricted by the limitations of his own business and the experiences he must undergo in it. And yet in an industrial country, the experiences of business should be close to the heart of the taxpayer.

The lawyer must be concerned with the general problems of his country if he is to function well as a lawyer. He is frequently concerned with government. Similarly the advertising agent must be concerned with economic conditions if he is to be of value to his client. His knowledge is worth something to governing forces. And the tendency of the advertising agent to enter more into governmental activities (with some real excuse for his doing it) has been much in evidence since the World War. It is probable that he will be even more prominent in the future. If he is, it is conceivable that his contributions to creative wealth will not diminish as merchandising knowledge increases. His vision and imagination are not incompatible with hopes for sounder application of business economics to the general welfare.

The Producer and His Sales Problems in Relation to Wholesaler, Retailer, and Consumer

By JOHN C. FRAZEE, A.M.

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COMPETITION for the consumer's dollar is essentially between groups of industries rather than between business organizations engaged in the same activity. If the consumer has an increased purchasing ability, some things which were formerly luxuries to him become necessities. On the other hand, if his purchasing ability decreases, some of the commodities which he considered to be necessities recede into the background of luxuries, and there is a gradual elimination of his requirements until, in the extreme case, he is reduced to satisfying his barest necessities. In such an extreme case, food is the first necessity, shelter and fuel are second and clothing, from the standpoint of protection rather than of adornment, is third.

In order properly to make an analysis of the sales problems of the pro-

¹NOTE. The writer discusses this subject from the standpoint of a producer of paint and varnish products. The sales problems of a producer of any commodity which is sold through wholesaler-retailer channels are undoubtedly more alike than they are different.

The magnitude of the paint and varnish industry is far greater than most of us realize. Let us take, for instance, the farm market for paint, which is only one of several tremendous markets which the paint and varnish sales manager must cultivate. The total outside paint surface of farm buildings operated by white farmers is in excess of 53 billion square feet. An average of 7½ per cent depreciation in farm buildings yearly through lack of paint is estimated to cause a loss to farm owners of 830 million dollars annually. Farms with well painted buildings are considered to be worth 16½ per cent more than others,—thorough painting would therefore add about 11 billion dollars to the value of United States farms.

The writer has three reasons for discussing the

producer of any commodity, it seems necessary to recognize two points:

- (1) Competition is essentially between classes of industries, as for instance between the producers of food and fuel.
- (2) Sales resistance is inversely proportional to the desire which the ultimate consumer has for the several commodities which it is sought to sell to him.

THE RIGHT SALES APPEAL

The sales problem in any industry is complicated to greater or lesser degree by the departure from normal of the desires of individuals taken specifically. Some people will deprive themselves of food in order to buy books. Others will live in the barest rooms in order to have more money for the purchase of clothing. It is possible to sub-divide consumers according to these idiosyncrasies and to base a sales campaign

subject assigned to him from the standpoint of the producer of paint and varnish products. First, he is identified with the paint and varnish industry from the standpoint of the producer. Second, he is a member of the directing committee in charge of the "Save the Surface" Campaign, to which organization is largely given the credit for increasing paint and varnish sales in the United States by 52 per cent during the last two years. Third, the discussion of the subject under consideration, from the standpoint of one great industry, in the short scope of this paper, will necessarily be more thorough than any other form of presentation.

We are glad to publish the following article, because the writer has a rich background of experience in one of our most fundamental industries.—THE EDITOR.

upon a special appeal to some one large sub-division of such consumers. Publishers of music cannot expect to sell their commodity to any except professional musicians and to music lovers, among whom there are many who will deprive themselves of some luxury or necessity in order to satisfy their desire for beauty in music. Of course, publishers of music, in the furtherance of their own business interest, not to mention the altruistic service they would render by extending an appreciation of music, should try to increase the number of consumers who desire music more than they desire many other things.

In discussing the specific sales problems of the producer of paint and varnish products, we should consider first the sales problems of the paint and varnish industry as a whole as it stands in competition with all other industries, and second, the sales problems of the individual producer as he stands in competition with other producers.

Since time immemorial, until very recently, paints and varnishes have been valued almost entirely, if not entirely, for their decorative qualities. Except for the small division of consumers to whom beauty is a necessity, paint and varnish products have been classed as luxuries. It is recognized that the line of demarcation between necessities and luxuries is movable, dependent upon the purchasing ability of the consumer. If we classify all commodities upon a scale, at one end of which are the absolute necessities, and at the other end of which are commodities which, to the average consumer, are the most extreme luxuries, we shall find that it is to the advantage of any industry, as a group, to move its product along this scale in the direction of extreme necessities. In doing so, it is necessary to neglect the existence of sub-divisions of consumers

based upon idiosyncrasy and to deal with all consumers as a group.

The only means available to the paint and varnish industry to move its commodities on this scale in the direction of absolute necessities, is through an appeal to the economic sense of the consumer.

It is recognized that in the case of dire necessity the economic sense vanishes. That is, a man who is starving will pay an inflated price for food. But under normal conditions, when the average consumer is far removed from dire necessity, an appeal to his economic sense is not difficult. Life insurance, fire insurance, the purchase of commodities when they are cheap in order to have them available when their price has advanced, are all evidences of the operation of the economic sense of consumers.

SELLING ARTICLE MUST MEET SPECIFIC NEEDS

In appealing to the economic sense of consumers, the paint and varnish industry points out that property which is exposed to wear and the destructive influences of the elements will depreciate in value and that paint and varnish products are the only materials available by which protection from wear and decay may be obtained. Producers of paint and varnish materials say that it is cheaper to spend money today for paint and varnish and its application than to permit property to deteriorate in value so that it will be necessary a year from today, or ten years from today, to spend a large sum for repairs and replacements.

Before it was possible logically (and any sales program which is not logical is worthless) to appeal to the economic sense of consumers, it was necessary to make absolutely certain that modern paint and varnish products would actually protect surfaces upon which they

are applied from wear and decay. The paint and varnish industry, as a group, has been engaged for a number of years in the most exhaustive technical research to provide raw materials and methods of manufacture which would produce wear- and weather-resistant paint and varnish products. Quality of product is so essential a factor in the paint and varnish business that all manufacturers are injured if any manufacturer produces a paint or varnish product which does not give satisfactory service. The injury arises from the breaking down of the assertion by the industry that paint and varnish should be used to protect property. Because of this consideration, the findings of the Institute of Paint and Varnish Research which the industry as a whole operates at Washington, D. C., are available to anyone desiring them, regardless of whether he has invested anything in the work of the Institute.

It has been found necessary to make paint and varnish products specifically for the several purposes which they are to serve. For instance, a varnish which is subjected to heat on a table top needs to be of a different quality than that of a varnish which is submitted to heavy traffic on a floor. Without multiplying examples, it is sufficient to say that a very comprehensive list of requirements has been studied and the best formula of paint or varnish determined for each such requirement. It is now customary for all high-quality paint and varnish manufacturers to make products in accordance with the experience which is available as bearing upon the several requirements, and insofar as it is possible, through individual initiative and research in the detail processes of manufacture, to raise the standard of their products as much higher as they can.

The result is that the industry as a whole is in a position today and has

been in a position for some years where without hesitation it may go before the public and say in the strongest language that "It is cheaper to paint than not to paint." The result has been the national "Save the Surface" Campaign advertising which is now recognized as one of the most progressive, co-operative advertising campaigns ever inaugurated in this country.

The purpose of the "Save the Surface" Campaign is to move the position of paint and varnish products on the necessity-luxury scale in the consumer's mind as far as possible in the direction of absolute necessities.

The average property owner has for many years had a sense of civic pride sufficient to cause him to paint his property when it is first built. If he did so simply for the sake of appearance, he probably used a very inferior grade of paint. The purpose of the "Save the Surface" Campaign, in other words, is to get the consumer to use a high-grade paint or varnish product at the time of the first application and thereafter to renew the finish with an equally high-grade product at sufficient intervals to prevent wear and depreciation of his property.

SAVING THE SURFACE SAVES ALL

A careful survey has shown that at a conservative estimate only from 20 per cent to 25 per cent of the property of the United States is adequately protected against wear and decay. In passing, it is fitting to observe that the paint and varnish industry as a whole may, without embarrassment, urge the public to use its products in larger amounts than ever before, because in doing so the public actually saves money. Civilization is the result of the accumulation of knowledge and property, the elevation of standards and ideals and the stabilization of our institutions, all of which are heritages

from past generations. From the standpoint of the preservation of property and the ability of society to pass it on from generation to generation, the paint and varnish industry plays a rôle of outstanding importance. This is a brief reference to the romance of the industry, which is especially apparent to those closely associated with it. It is more than a mere romance. The logic of the situation and the fact that from 75 per cent to 80 per cent of all property is today inadequately protected against wear and decay, appeal to the progressive business man, whether he be manufacturer, wholesaler, retailer, or master painter, as offering an extremely lucrative business opportunity.

THE SALES PROBLEM OF PRODUCERS

The subject of this paper includes the sales problems of the producer in relation to wholesaler, retailer, and consumer. The producer's sales problem in the paint and varnish field in relation to the consumer is very largely covered by what has been said above relative to the "Save the Surface" Campaign activities. In association meetings where the "Save the Surface" Campaign is frequently discussed, the function of this co-operative advertising has often been likened to plowing a field and preparing it to receive seed. The individual activities of the several producers in the paint and varnish industry, to continue the analogue, is likened to the one who sows the seed in the field which has thus been prepared. Practically all paint and varnish advertising today done by individual manufacturers is based upon the "Save the Surface" Campaign advertising and is an attempt on the part of the individual producer to convince the consumer that his particular product is best adapted, or equally well adapted as any other manufacturer's

product, to conserve property from wear and decay.

The problems of the manufacturer of paint and varnish products with respect to the wholesaler and retailer, in addition to getting these distributing agencies to visualize and capitalize upon the "Save the Surface" Campaign activities to the fullest extent, are much the same as the sales problems of any other producer dealing with wholesalers and retailers. It is a rather general practice of manufacturers in the paint and varnish industry to deal direct with the retailer and the master painter. In the case of large industrial consumers, the manufacturers deal direct with the consumers.

RETAIL PROBLEMS

The paint and varnish business is distinctly different from many other businesses in that a representative stock of paint and varnish materials runs into a very considerable investment. The average drug store sells many makes of tooth paste. It would be impossible for a retailer or painter, with profit, to carry many makes of paint and varnish products. In fact, it is the purpose of every high-quality manufacturer of paint and varnish products to manufacture "a complete line," thereby making it possible for the retailer to avoid duplication and consequent overhead by carrying only one maker's line of products.

One of the most difficult problems in merchandising paint and varnish products to retailers is to get some of them to see the economy and sales advantage of carrying a complete line of one make and one make only. The economy is, as indicated above, the reduction in overhead and consequent increase in turnover. The sales advantage, so far as paints and varnishes are concerned, is at least twofold. There is the positive advantage of qual-

ity and the consequent satisfaction given by one product, which causes the consumer to ask for another product of the same make. There is the negative advantage, and a very peculiar one, in the paint and varnish industry, which may be best illustrated by an example: A dealer sells two different makes of floor finish, "A" and "B," both designed to give the same type of finish and to be equally satisfactory in service. Mrs. Smith buys floor finish "A" and applies it under proper conditions. Mrs. Jones is pleased with the finish of Mrs. Smith's floors and goes to the dealer from whom Mrs. Smith purchased her material and asks for floor finish. The dealer sells her floor finish "B," whereas he sold Mrs. Smith floor finish "A." Mrs. Jones applies floor finish "B," contrary to specific instructions (on floors which are not dry or which are not clean), and the result is a very unsatisfactory job. She complains to the dealer, who, if he had sold Mrs. Jones floor finish "A" the same as he had to Mrs. Smith, could prove to Mrs. Jones without a shadow of doubt that the fault is not with the material.

Another problem with the retailer which is not peculiar to the paint and varnish industry is the necessity of changing the selling method of retailers in line with advanced retail practice. The time has largely passed when it is possible for the retailer to succeed in large measure simply by waiting for customers to come into his store. The few who do come into his store of their own accord are already sold. This problem applies more particularly to the sale of products which are bought at comparatively long intervals than it does to products, such as groceries, which are bought at rather regular and frequent intervals. The purchase of groceries and of some other commodities which are bought at frequent in-

tervals involves a much larger habit forming element than does the purchase of commodities such as paint and varnish which are bought at rather infrequent intervals by the consumer. The most progressive selling method with respect to paint and varnish products is for the retailer to cultivate the sales field intensively without waiting for customers to come into his store. It is more important for the retailer to be outside of his store much of the time than in it all of the time, but many retailers have not as yet grasped the situation as they should.

In the experience of our own company we have found that it pays to have our salesmen take dealers outside and assist them to sell prospective consumers, not altogether in terms of brand, but at first in terms of the economic saving involved and second in terms of brand. A retailer who has thus had demonstrated to him the advantages of such personal work outside of his store usually becomes enthusiastic about it.

Another sales problem which is not peculiar to the paint and varnish industry is to get the retailer to make the best use of advertising and sales helps which are furnished to him by the manufacturer. Here again the salesman representing the producer has an opportunity to teach the retailer to the advantage both of himself and the manufacturer.

It will be interesting to note in passing that with the permission of the "Save the Surface" Campaign one of the large publishers of the United States is now publishing what is known as the *Save the Surface Magazine*, which the publisher sells as a monthly issue to progressive retailers and painters for their use as an advertising medium.

Another problem which the paint and varnish manufacturer has with his retailers to a greater degree than

some other manufacturers is to get the retailer to be of technical assistance to the consumer. Such technical assistance has the advantage of more nearly assuring that the consumer will be satisfied, as well as opening the opportunity for legitimate increased sales at the time of purchase. There are a number of accessories, such as sandpaper, brushes, reducers, as well as items of more consequence, such as other paint or varnish products, which the consumer really wants, but which he fails to think of at the time of purchase unless he is tactfully reminded of them. The paint and varnish industry is seeking to solve this problem by encouraging retailers to do so to assign at least one clerk entirely to the sale of paint and varnish products. A paint and varnish department is created and named "Save the Surface Department." The manufacturer assists in educating the point salesman from a technical standpoint and shows him how advantageous it will be to him and his employer to do field work in his community, including mail promotion and personal follow-up. Almost invariably, the creation of a paint and varnish department will be followed by increased sales of very considerable amount.

Another retailer problem which is not peculiar to the paint and varnish industry has to do with the lack of system and business method in general by the retailer. There are invisible overheads and costs of depreciation and obsolescence, which often escape the attention of the small retailer. He frequently fails to maintain any kind of a cost accounting system. He is altogether too apt to subtract the money that he pays out from the money that he takes in and to call the difference profit, not realizing that he is accumulating certain obligations to himself and his business which must inevitably be met, the meeting of

which, unless provided for, often spells ruin.

Paint and varnish manufacturers have found that the best solution of their sales problems with the retailer is to obtain a sales representative who is able to raise the selling standard of his retailers. Every progressive manufacturer realizes clearly that it is necessary to devote very little attention to selling his products to the retailer if he can educate the retailer to sell his products to the consumer.

Having exercised the greatest care in selecting a retailer, the manufacturer's sales representative begins a certain educative process with him, which must of necessity, in many cases, extend over a considerable period of time. If it is not possible at the moment to select a retailer who either is a progressive business man at the time he is selected, or is capable of being trained into one, it is altogether better to fail to be represented in that locality than to identify the "line" with an unprogressive storekeeper.

The training which the salesman should give to his retailer relates to all phases of retailer business. It has to do with overhead, turnover, inventories, technical information relative to the use of products and their purposes, advertising, promotion, personal follow-up.

What has been said relative to the retailer may be repeated with reference to the master painter. Both the retailer and the master painter are important links in the distribution of paint and varnish products. It is not the intention of the writer to indicate that all retailers or all master painters are unprogressive or lacking in initiative, but any producer selling his commodities through such or similar channels recognizes fully that the need for education with many such distributive agencies is very great.

It is interesting in this connection to refer to "Save the Surface" salesmen's clubs which are organized in many of the important cities of the United States. This is a comparatively recent development during the past year and a half; and is a further indication of how closely the entire paint and varnish industry is becoming knit into an industry having one great purpose. "Save the Surface" salesmen's clubs are often instrumental in organizing "Save the Surface" dealers' associations. These dealer associations have become an excellent agency for the education of dealers in better selling methods.

RESULTS OF SALES PROMOTION ACTIVITIES

The paint and varnish industry as a whole has made wonderful strides in its selling methods during the last few years and it is of interest to call attention in closing to two measures of the progress which has actually been made. In terms of tonnage and gallonage, the total consumption of paint and varnish in 1922 was 187 per cent of that in 1921 and in 1923 it was 152.4 per cent of that in 1921. Nineteen-twenty was the record year up to that time, but 1922 was 12 per cent in excess of 1920. Nineteen-twenty-one was by no means a poor year. The use of the year 1921 as a basis for computation is not because of the fact that it was a poor year, which it was not, but because of the fact that in 1921 the "Save the Surface" Campaign inaugurated a movement among all interests in the paint and varnish industry to "Make 1922 the Greatest Paint and Varnish Year, and Double the Industry by 1926." The slogan for 1923 was the same as that for 1922 with the exception of the mention of the year 1923. The slogan for 1924 was changed to "Make 1924 the Greatest Paint and

Varnish Year and Double the Industry Ahead of Time," because of more than half of the five year objective having been reached during the first two years.

It is a legitimate question for anyone as to whether the marvelous increase in consumption of paint and products since 1921 may be due to an abnormally large construction activity. In answering this question must be remembered, first, that it is estimated that only 25 per cent of the consumption of paint and varnish is occasioned by new construction; and second, that it is generally admitted that, while the volume of building which is being done should care not of country, but should reduce the amount of the delayed construction the amount of the building which has due to the war, during the past two years has hardly kept pace with the demand caused by increasing population. The best authorities do not estimate much if any of the volume of building construction during the past two years to an abnormal condition.

Another measure of the effectiveness of the sales promotion activities of the industry as a whole is found in a peculiar condition which arose during the last industrial depression. As mentioned above the paint and varnish industry has, in addition to its marine and foreign sales fields, two distinct domestic sales fields. There is what is usually spoken of as the dealer trade, which includes paint and varnish sold through dealers and master painters to ultimate consumers, and what is known as industrial trade, with which in general jobbers and retailers have nothing to do. The industrial trade consists of paint and varnish products sold to large corporations, either for use in maintenance of plant and equipment or for consumption as a raw material in the manufacture of their fin-

ished products. At a time of industrial depression, the purchase of paint and varnish products by industrial concerns rapidly diminishes; and because of the fact that men are thrown out of employment, the cumulative of diminished dealer trade sales has heretofore followed the industrial sales curve downward. The condition was entirely different during the last industrial depression. As industrial sales diminished, trade sales increased. The only way to account for this apparent anomaly is that apparently workers who were temporarily out of employment during the depression had saved some money and having had saved the truth of "Save the Silver, Recognize Save All," they employed their time and invested their money in refinishing their own homes.

Those who are following conditions closely in the paint and varnish industry believe that the great proportion of the consumption of paint and varnish during the last two years is directly due to the industry's educative campaign which is beginning to register with the consuming public.

It will be seen from what has been said above that so far as the "dealer trade" is concerned the paint and varnish industry is progressing rapidly in the solution of its sales problems. It has recognized clearly that its sales problem, in the major, is not competitive within the industry, but is competitive as between the paint and varnish industry and other industries.

PROBLEMS FROM INCREASED SALES

There are a number of subsidiary problems which can be no more than touched upon, which have grown out of the rapidly increasing sales of paint and varnish products. There are today insufficient painters to supply consumers' demands. This condition has caused the industry to attempt to do

three things: First, to get more men to apply paint and varnish; second, to enable each man to apply more paint and varnish per hour; third, to enable each man to work more hours per year.

A systematic effort is being made to train journeyman painters. Apprenticeship schools have been opened in many parts of the United States for this purpose.

It is possible, through mechanical means, to apply paint and varnish products especially in industrial uses many times more rapidly than by brush and to produce a film thereby which is as good as the best brush film. The use of such mechanical equipment is helping to solve the limitation from the standpoint of ability to apply paint and varnish products, which the industry faces today.

People in general have formed the habit of having their painting and varnishing done at spring house-cleaning time. This causes a peak of work at one time of the year and in the past has caused a slack at other times of the year when outside painting, especially, could be done to advantage because of dryer surfaces. The industry is taking successful steps to lengthen the painting season.

The volume of business available to be done by master painters has not only created a shortage of men to apply the paint, but has made necessary some means to enable the master painter to finance a larger volume of business. The paint and varnish industry has accordingly found it necessary to encourage bankers to organize property improvement clubs, in which savings are set aside for painting and other property improvement. In addition to this, the industry has encouraged the organization and operation of financing companies, which finance the operations of the master painter.

It has been possible to develop such financing operations to a point where they are very simple, unobjectionable to the consumer and extremely safe to all concerned.

The industry has inaugurated within its own membership a movement to "paint the paint trade," with the avowed purpose of practicing what we preach.

It is interesting to observe that as public consciousness to the economic necessity of paint and varnish has increased, there has developed a large demand from editors of newspapers, farm papers, magazines, and radio programs for authentic information as to the use of paint and varnish products and as to attractive schemes for home decoration. It has become necessary for the industry to maintain an information service designed to give unbiased, authoritative information upon such subjects. Government and state officials who are interested in the improvement of rural conditions frequently call upon the industry for

assistance in connection with paint and varnish problems.

Editors, bankers, real estate operators, county farm agents are better acquainted with paint and varnish missionaries. coming part of the rural improvement service of one of our state governments said a few months ago that it was the intention in his state thereafter, in connection with all rural building plans furnished by the state to farmers, to suggest that if the prospective builder is unable to keep his property well painted it is better not to build.

At best, this article is sketchy. The writer has attempted to set forth briefly the broader aspects of paint and varnish fronting products from a sales standpoint and materials from a sales angle which experience has given to some of the nature in may be problems of a sales nature in other industries which could be analyzed and handled successfully along lines similar to those employed by the paint and varnish industry.

The whole proposition is so impossible that it is a waste of time to talk about it.

Since improvement of the retail situation cannot be brought about by an arbitrary limitation of number of stores, the question remains: What can be done to improve matters? The answer is to be found in better education of retailers, in more careful study of locations for new stores, and in the automatic elimination of inefficient and poorly located stores through the increased competition of chain stores and well-managed individual stores. At best, this must be a very gradual process, but progress is being made. In fact, the question of efficiency in retail store operation has never been tackled seriously until within the past ten years. The studies that have been made by business research bureaus of our universities, by jobbers, by trade associations, and by the government, are well known, and they are already beginning to have their influence. The work done by certain wholesalers in finding proper locations for people desiring to go into the retail business is also worthy of note, and might well be extended with considerable benefit.

THE CHAIN STORE

The most striking advance in retailing, however, is being achieved at present through the chain stores. Be it noted that chain store companies do not rely on large stores, but plaster the map with small neighborhood stores. Consider, for example, the policies of the United Cigar Stores, and the Atlantic and Pacific Tea Company. Chain grocery stores have an advantage over the average individual retail grocery store by about 10 per cent. That is, they can sell for about nine cents what an ordinary grocer has to charge ten cents for.

Chain stores are driving incompetent

retailers out of business, they are keeping new retailers from being established, they are cutting down the volume of business done by many individual stores, and their competition is also helping to develop well-managed individual stores. It has been found that chain stores succeed in capturing only a part of the trade of a community; properly managed full-service unit stores are able to hold their own and prosper. Although there are no statistics bearing on the extent to which chain stores have displaced unit stores, the writer would hazard a guess that each chain grocery store in the country today takes the place of from $1\frac{1}{2}$ - to $1\frac{1}{2}$ -unit stores. The development of the chain store is the most important thing that is taking place in the whole field of marketing today, and it is bringing about not only an elimination of unfit retailers, but it is acting as a great incentive for better merchandising methods in retail stores in general. The mail order house is having the same effect on retailers in small towns.

Referring to the suggestion that more attention ought to be paid to the selection of locations for new stores, it is worth noting that chain store companies have reduced this matter to more or less of a science. Each possible site is carefully studied. Information is obtained as to the number and character of people who pass, the proximity of street cars, whether on the sunny or shady side of the street, the character of nearby stores, etc. After making such studies as these, the big chain store companies seldom make a mistake. Unfortunately, individuals who contemplate starting a store do not have information of this sort at hand, and do not know how to make a proper investigation. Consequently, there are thousands of small, struggling retailers, who are located in unfavorable places, and who would be doing themselves and the

community more good if they were in better locations.

So the whole problem simmers down to the question of improved methods of merchandising and better selection of store locations. To say that there are too many retailers does not go to the heart of the problem. It merely leads to impracticable suggestions. The

gradual process of raising the standards of retail efficiency, allowing the best-managed stores to conquer the field as much as possible, is the best we can hope for. But we can all help by encouraging those agencies which are trying to educate retailers and to develop improved methods of merchandising.

Modern Distributive Demands on Education

By F. R. CAWL

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IN an inconceivably short period of time the economic aspect of our civilization has been completely changed. Industry has developed rapidly from the home workshop period to the modern industrial factory. By the aid of ingenious machines thousands of articles are now produced where one was formerly. Whereas, under the old system, an artisan readily disposed of his wares to his neighbor, this new system finds it increasingly difficult to distribute its production. As a result of the perfected processes of production, distribution is coming to be a consequential factor in modern commercial life. While new inventions are constantly adding to the quantities of goods produced by factories, distribution is, in turn, forcing new methods of transportation and communication the better to disseminate quantity production of industry. Water and rail transportation has made London and San Francisco as accessible to New York and Philadelphia as New York and Washington once were to each other. The development of the motor is rapidly giving us control of our highways and the air, while the telegraph, telephone, and radio, which have almost annihilated time and distance, are doing their part in this ever-increasing complex task of distribution.

The greatest element, however, in this forward march has been man himself; yet curiously, he has been permitted, until recently, to wander along almost aimlessly. There seems to have been little or no realization that the few individuals who were gifted in producing the changes that have taken place

might produce a society in which the average or sub-normal man would find it difficult to exist. It has remained for those who come to work in the field of distribution to realize that the human element is the greatest factor with which they would have to cope. They realize that it is through education, and education alone, that the tasks ahead of them can be accomplished and the necessary distributive process for economic goods be scientifically organized. They realize that to keep pace with the past and present achievements of the world at large men will be forced to change their conceptions of education as it relates to the dawning distributive concepts of today. We are coming to see that education is a "social process," and distribution is forcing us to recognize its content as having great value in this process.

AIM OF PRESENT-DAY EDUCATION

Education has its contribution to make to the life of the country at large in anticipation of distributive economic requirements. So far, the inadequate manual training, secretarial, and commercial courses are the main attempts toward adjustment. These must be bettered. Also the tendency for the school to become an end rather than a means toward the adjustment of the boy and girl to the business or factory world upon which modern progress depends must be rectified.

In earlier education emphasis has been placed on reasoning, but the great human factors connected with distribution are forcing a study of the instincts, senses, and emotions. It is

evident that these are the dynamic factors calling for control in our youth today. We shall make progress as education teaches us their use in relation to the dignity and efficiency of modern economic demands. We might almost say that the old academic ideal was discipline—intellectual discipline—while the newer ideal, promulgated by the forces of distribution, shows us that education has the possibility of developing dynamic, socially-minded business men.

CORRELATING EDUCATION AND BUSINESS

Education has at last united these two ideals, and aims to give to every child the knowledge and specialized training that will enable him in his environment to make the best use of his innate abilities. This means that education strives to organize and enrich, as far as possible, the mental life of the individual so that he can, with satisfaction and efficiency, find a sphere of usefulness in our modern complex life.

Theoretically, this aim satisfies the demands of modern distribution, but it has not been worked out practically, and it is my contention that modern distributive efforts call for a new type of education which will train young people to meet the present evolving environmental needs and demands. The problem for educators, then, is to determine the type of training needed in this field and see that schools are built and curriculums formed to take care of these requirements.

High schools should not be permitted to remain mere outgrowths of the academic college, modelled and shaped to supply more academic material. This traditional stand has held the high school in its grasp and limited its work so that it reaches only a small percentage of the potential students in its

district. The urge toward active life, that the field of distribution encourages, is more than ever in the veins of our youth, and only as more practical subjects enter the curriculum can they be induced to remain in school longer and in greater numbers.

Even the majority of our colleges have not yet adapted themselves to modern distributive demands, though many have courses in business training. The courses have been forced on them by insistent requests from the outside rather than an inner comprehension of the type of organized courses which anticipate modern distribution.

It should be remembered that business interdependence is placing a new responsibility upon modern educators. A business organization is now as much of a hereditary factor and as vital a one as our traditional family ties. While a business organization is environmental to the growth of the land, it is also an inheritance which represents honest toil, strong thinking, and often courageous action on the part of those who have fostered its growth. Furthermore, it is through an appreciation of the laws related to its inception, growth, and development that youth is to utilize it in the further increase of wealth through distributive processes.

KNOWLEDGE OF DISTRIBUTIVE FACTORS LACKING

Illustrative of the needs in this field we may cite the rapid growth of department stores. The owners of these immense distributing centers have worked diligently to select their merchandise, to transport it from every section of the globe and store it properly in order to meet the growing demands of the people. These men and their associates have tried to make their stock meet the requirements of every individual purchaser. They have found it necessary, in order to let the community know the

resources of the organization, to build up carefully planned and organized advertising departments. They have splendid accounting systems and delivery departments—in fact their system of distribution is excellent, with the exception of the human element. They find the products of education of little or no value in the field of modern distribution because they have not been trained to fit any of the types of work represented.

It is through an appreciation of science and its application to the problems of distribution that business may be made ethical and professional. Thousands of young men and women should be trained during the years of plasticity to appreciate the human, technical, and service values involved in attempting to make a livelihood in the field of distribution.

Distribution is evolving a new type of administrator and executive in keeping with the concept that all individuals have a right to possess economic goods in accord with merit, happiness, and prosperity. In so far as my argument suggests a technique of action, non-experimental but scientific, just to that extent should high schools and universities sense the spirit of the times and adapt themselves to these modern demands. It is true that the student today is getting a certain kind of an education, but not the proper education to cope successfully with the problems to be met in this field.

Even in so technical and thoroughly trained a field as engineering, we find that men fail to make good executives because of their lack of knowledge and study of the distributive factors of business. This, however, is not true of engineers alone, for the chemist—the doctor—the pharmacist, or in fact any man who specializes in other departments will be found to be just as lacking. Education has not given

that training which makes men think and act straight in the social and economic relationships connected with distribution.

Distribution has made it impossible for the small merchant to live within his own community without thought of the surrounding world. Every modern merchant must watch national and world tendencies or his business is likely to slip away, and where, asks distribution, will he receive his education if the schools do not give it to him?

NEW CURRICULUMS NEEDED

The demands that are being made on education by distribution are nothing more than the operating of economic forces. We have reached the limit of endeavor that is possible without the aid of differently trained students and teachers. Economic forces are demanding these new services for further progress. The above analysis will offend the present traditionalists as well as the present so-called practical group of educators. Our ideas in the past have been very definitely along material lines. We have been taught to reason about material things with great intellectual detachment, but our very ideas of democracy have often kept us from training ourselves to think as impersonally where human relations enter.

Now, however, is the time for us to think seriously about formulating new working plans for the newer types of minds coming into vogue. It is not possible to add new material to old academic courses, as has been done with so many of the economic courses in our colleges, and expect them to satisfy new demands. We cannot use the teachers, trained in academic lore, with academic viewpoints on every subject, to instill the new principles being developed by the distributive process. It is not possible for the college to look

on the high school as passively as it has. It must give more aid to formulating the curriculum of these schools and more attention to its prospective students while they are still in high school. The high school course in turn no longer can take on the methods and atmosphere of the college in order to meet college requirements. It is new types of intellectual material that education must disseminate, material which will train its students to assume tasks and meet the responsibilities of modern business. It must actually cultivate the skills which we have been permitting our youth to learn by imitation from their elders. A complete change is necessary, a change that will consider the demands made on the individual after he is placed on his own resources in the business world.

It will be contended by certain factions that distribution demands only the non-formal subjects and that from these you cannot get real cultural value. With this theory we will have to take issue, for we feel that there are many subjects whose cultural value equals that of the formal group. Professor Thorndike says:

Expectations of universal transfer of ability in large amounts are no longer entertained by competent thinkers. It is agreed that there is no mysterious necessity in the nature of man which makes an improvement in grammatical reasoning spread to produce great improvement in all rational thought, or makes improved attentiveness to numbers in computation produce power to attend to the cloth in a loom or the marks on a butterfly. It is agreed that a gain in one ability improves others only in so far as it is proved to do so,—that the question of the disciplinary value of any training is a question of fact to be measured, not an article of educational faith to be assumed. It is agreed that, roughly, we can hope for such wider improvement only in so far as the other abilities in question are in part identical with the ability specially trained.

From this it would seem that it was better to train the abilities sought than to train something else and expect the training to transfer later on. All that distribution asks is that education include in its curriculum subjects of more practical value than an equal cultural value with the classics. It feels that in economics, psychology, political science, the study of labor problems, and economic geography and history there is an equal, if not greater, opportunity to discover and transfer effective, useful, and cultural ideals. Real culture always includes an acquaintance with the great thoughts and souls of other times and races besides developing within the individual an appreciation of the beauties of nature and of art. With this, distributive forces are entirely in accord.

AFTER HIGH SCHOOL, WHAT?

Before proposing definite studies that distribution feels necessary to the curriculum of today, let us consider the youth and the working outlets open to him, and let us consider business and its organization, for only through proper co-ordination of the two can a satisfactory solution be reached.

From the standpoint of the youth four fields are open to him when he leaves high school:

First. He may enter institutions of higher learning. We are informed through careful studies that fully 50 per cent of the college graduates enter business. There is the possibility that he will find a place in distribution.

Second. He may enter business at once, in which case he cannot escape possibilities with distributive agencies.

Third. He may enter industry, but since industry is so closely related to and even dependent upon distribution—the more he knows about the relation of the two the better chance he has for success.

Fourth. He may enter agriculture. Here, of course, as our modern society is constituted, we find that he is entirely dependent on distribution to take care of the products he has for sale. The more he knows of distribution the better fitted he is to meet competition in his field.

To women all these fields are open, and added to them is a fifth, that of home making. In this field, as in all of the rest, distribution plays an exceedingly important part. The more girls anticipate the "Art of Living" in terms of the æsthetic and emotionally pleasing, the greater will be the future demands and responsibilities in keeping with a wholesome, healthy standard of living. Wealth is added to the nation as youth builds for happy homes.

It is necessary, it seems, for the school to consider the occupations that these people must enter, and train them accordingly, which, according to our analysis, means that courses involving the principles of distribution must enter. Those who realize what is happening know that the time has come for the school to include all aspects of modern life in its curriculum. It cannot fall back on the excuse that the curriculum is already crowded. It must be reorganized and expanded until all the subjects necessary to the full life of the individual are included.

In every line of business there are two important parts known as the in-

ternal and external. Considered as internal are the functions of (a) administration, (b) production, and (c) distribution, while those things which are external include: (a) a study of psychology and sociology, (b) a comprehension of law and conformity to it, (c) participation in government and the absorption of the results of such government, and (d) such agencies as banks and accounting systems.

As we study these parts carefully we find distribution closely related to every other one whether internal or external and that, in order to make an intelligent curriculum, both sets must be included. We know that business, with distribution as its main branch, must soon be accorded the standing of a profession just as medicine, law or engineering, and it is toward that end that we present these demands.

VALUE OF VOCATIONAL GUIDANCE

It is only natural that everyone will not be capable of reaching this last stage of perfection, some because the mental processes are lacking, and others because they belong in some other field. It is really in the realm of vocational guidance to determine which individuals are fitted for the various tasks confronting us. We select the proper equipment for our offices and factories and give much time and attention to selecting stock for our dairies, and there is far more reason for selecting carefully the individuals who are to enter the various fields of business. Each individual should be watched, his peculiarities and aptitudes noted, and then under the direction of a wise vocational counsellor his course should be determined. We should not during the college years of a boy's life find that he is studying advertising when his outlook is that of an engineer, or that we have an individual trying to sell who

would be happier and more successful as an accountant.

However, it works the other way also. We find fine specimens—healthy, energetic, and intellectual individuals—who should be advancing in the field of distribution, but who have been forced out of school because of the economic condition of their family. We also find that many energetic types were not held because the curriculum was not adjusted to their innate wants and needs. These boys should have been saved, the way should have been opened for them to continue their studies, and wise vocational counseling might have done it.

A wrong choice wastes years of an individual's life, the time of the teacher, and the money expended, and gives us at best a mediocre product. Educators have, until recently, overlooked this phase of education entirely, and even now those engaged in the work are in many instances entirely unfitted for it. Teachers with no knowledge of affairs outside of the class room are trying to tell pupils what conditions they will meet in this, that or the other field of work. It seems almost an absurdity and, although it is a step above nothing at all, we should, if guidance means anything, start to train workers and produce standards which will do the work effectively.

PRACTICAL, FUTURE-OPENING COURSES

We may turn next to the individual subjects in the curriculum. When the pressure for these new subjects was first felt, the schools grudgingly put into the curriculum such courses as commercial arithmetic, typewriting, shorthand, and penmanship. They did not attract the students from the higher class of homes, for they considered that a curriculum including such courses would lead their children no-

where. They were perfectly right—those courses and courses like book-keeping, filing, and office appliance manipulation are nothing more than the tools of business, the means of carrying on the work to be done in the field of distribution. They are means to an end, and that is all. If they were properly used to give to the financially embarrassed student a means whereby he could support himself while continuing with more worth-while subjects it would be all right, but this was not and is not their avowed purpose.

To such courses as those named we could add business correspondence, secretarial work, a course in economic thrift, and one in general business economics which would give us courses from which to select during the first years of our training. As the work progressed the courses would more and more partake of those things pertaining directly to the field of distribution as:

1. Merchandising
2. Advertising
3. Selling
4. Psychology
5. Economics
6. Transportation

and courses that would produce within the individual the ability to express himself clearly and accurately in his native tongue both orally and in written work.

There would be many other helpful courses to be taken during a period of training for the work in distribution. Those that would prove to be the best assets, if properly taught, will be found in the following list:

1. Logic and ethics
2. Business methods
3. Principles of finance
4. Commercial languages
5. Commercial geography
6. Commercial law
7. Commercial and industrial history

8. Sociology
9. Political economy
10. Civics
11. Accounting
12. Production
13. Insurance

Organized as distribution demands, a one-year course in the high schools would give fundamental training which, by the end of the second year, could culminate by finishing shorthand, type-writing, or a secretarial course. This is but a beginning. The third year would permit of some slight specialization in subjects like advertising and selling. The fourth year would give opportunity for the study of some external problems of businesslike life insurance, psychology or commercial law, while the fifth would complete a definite course preparatory to work in the distributive field of business.

Our next consideration is the teacher in this field. At present more women are teaching in these newer courses than men, and the majority of the teachers have no business experience and are not graduates of our schools of commerce. How can we expect the product of this teaching to take its proper place in modern competition? For teachers in this field a general education is desirable, followed by intensive research and business experience in the field of distribution. We want the same intellectual ability that is demanded for other university teachers and the same keenness to be displayed

in discovering, marshalling, and interpreting significant facts.

In this field the college should be the leader. It should point the way. It should help to write the books and to map out the courses that the high schools should follow.

FUTURE EDUCATIONAL GOAL

Up to the present, many in the field of pure economics have written on subjects connected with distribution, not because they had any great interest in the field, but because of the theory involved. It has been truth apart from immediate and decisive action. This indicates that the literature in this newer subject needs to be written, filled with life values and energy incentives characteristic of the type that is being called to do distributive work.

If modern distribution could but feel confident that the suggestions given were parts of plans in the process of formation and that education would take into complete consideration the suggestions that distribution has proposed, it feels that the aims of education might be nearer an accomplished fact and that thereby many of the problems of distribution calling for solution would soon be solved. It is to be hoped that educators, experts, and business men will be called into council to debate and deliberate, until out of the discussion a new type of curriculum will be given form. We look forward to the day when a Distributive High School will evolve.

The Automobile Industry and its Wealth-Contributing Factors,

By CLIFTON REEVES

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IN order to understand clearly what the problem is in the automobile business, it is necessary to know something of its magnitude as a whole, and the place it occupies in the field of industry.

GROWTH IN SALES AND USAGE

In the year 1923, 4,086,997 motor cars and trucks were produced in this country at a wholesale value of \$2,252,896,257; exports of motor vehicles amounted to \$189,737,018.00. The registration of cars and trucks totaled 15,092,177. There is invested in the motor vehicle manufacturing business capital of \$1,571,722,411. It pays out in wages and salaries the great sum of \$579,002,686 yearly.

When you stop to consider that this tremendous business has grown from \$946,947 in 1899, the wholesale value of the car and truck production that was, to the tremendous business, as already given, of over two and one-quarter billions, is it not astounding? As to the future of the business, it is estimated by competent authority that 41,614,248 persons are gainfully employed in the United States. According to the 1920 census, with 13,464,000 motor car owners at the close of 1923, or one car to every seven persons, we have a fair idea of the possibilities for the sale of motor cars in this country.

Analysis by the National Bureau of Economic Research of persons gainfully employed shows that motor car owners are mainly in the field of those

receiving over \$1,500 a year. Those receiving under this amount are still unsupplied with motor transportation. While, of course, it cannot be assumed that all of the 28,150,000 gainfully employed non-owners of automobiles are prospects, yet it must be kept in mind that millions of them are young people whose incomes are on the increase. Furthermore, there is an increasing use of the automobile by business houses, providing additional market in this direction.

One should also keep in mind the fact that in the year 1923 over a million automobiles, or, to be exact, 1,010,526, were scrapped. This represents only a part of the replacement. Replacement sales depend upon supplying the gap caused by scrapping motor vehicles and supplying new vehicles to owners who can sell their used cars.

VALUATION INCREASED

Coincident with the investment by the public in motor vehicles during the past ten years, there has been a continual upward trend in various forms of savings. Assets of building and loan associations have tripled; life insurance in force is more than two and a half times as great; savings bank deposits have nearly doubled and the total individual bank deposits are more than what they were in 1913. Due to the low price of motor vehicles today, the 1923 wholesale value is but little higher than 1920, though production in terms of units is 50 per cent

higher. During this same period comparative gains in money expended for residential buildings about parallel the increase in motor production.

The motor car industry is the third largest railway shipper of manufactured articles. In 1923, 471,547,000 automobiles were shipped in freight cars from automobile factories. Besides this, 1,142,315 machines were driven from plants.

The automobile dollar buys more than it did in 1913. It now buys 111 cents' worth of automobile, 101 cents in gasoline and 123 cents in tires. In most other commodities the 1923 dollar is buying only 60 cents' worth of goods.

As an instance of how professional men use the automobile, the record shows that 144,000 doctors use motor cars. Facts also show that the efficiency of cars increase in direct proportion to road improvement. In the United States 88 per cent of all the motor vehicles in the world are owned and operated on the 2,941,274 miles of highway. In 1922 an expenditure for highways of \$898,353,307 was made.

The automobile industry today ranks second among commodity exports in this country. In the United States there are 43,588 motor vehicle dealers. There are over 90,000 established in retail trade. These facts give some idea of the widespread magnitude of the distributing methods of this business.

IMPROVEMENTS INCIDENT TO AUTOMOBILE INDUSTRY

There are certain more universal aspects of the use of the automobile which should be recorded. Motor vehicle taxes contributed \$471,548,000 in 1923. The farmers, who represent the largest single group of citizens in our country, own and operate 4,100,000 motor cars, besides 400,-

000 motor trucks. There are 13,087 consolidated rural schools of the United States. Of these 1,393 were established in 1923 and being attended by 289,000 children, who ride to school in motor busses. We thus have some idea of the part that the automobile plays in the development of education throughout the length and the breadth of our land. What is a greater wealth-distributing factor than a distribution of ideas through daily closer contact?

The distribution of the motor car in relation to population shows that over 30 per cent of the cars are on farms and in towns under a thousand people; 20 per cent are in cities from 1,000 to 5,000; 11½ per cent are in cities between 25,000 to 100,000; 16⅞ per cent are in cities from 5,000 to 25,000; and 21½ per cent in cities over 100,000. There are employed directly in the automobile business 2,879,370 persons and indirectly 226,000 persons more—grand total, 3,105,350.

The producer of motor vehicles has the great background of what has been done in the industry to assist him to a knowledge of future requirements, coupled, of course, with general business conditions throughout the country and the export field.

Experiences of some large and important automobile companies show that the safest and most profitable plan is to establish production schedules evenly distributed throughout the months, rather than to try to meet fully the peak demand, particularly when it is abnormal. The penalty of the latter is to draw upon capacity and materials beyond the normal ability to supply them.

The producer naturally has to study carefully what is going on in our country and in the world, and to interpret as nearly as possible in motor cars the demands of the people. An outstanding example of this is that the closed

car business has gone now to 34 per cent of the total production, when only about five years ago it was about one third of this, or 10 per cent.

Modern business requirements continually make new and uncertain demands upon the time of its people. This fact has a general tendency to increase appreciation of the advantages of living in the country away from the thickly populated city life. This also has the further advantage of spreading wealth to larger areas.

The widespread sale of gas and oil and other supplies for the motor car is so well understood that it needs no comment here. Property values are increased, hotels established and factories are located in places made available by motor cars that ordinarily would have been placed nearer congested places in the cities. Habits of saving and thrift are practised and the value of credit established and appreciated. The habit of sacrifices for creditable purposes develops character, for statistics show that people pay in installments on their cars regularly and very satisfactorily.

Several other consequential wealth-producing factors are a result of the automobile. The labor banks are growing by leaps and bounds. Millions of dollars are being appropriated for highways built after the best type of foreign roads. Initiative and responsibility of character is developed in the driving of motor cars. We are all coming to appreciate the highway as a thing of service through the use of the automobile which comes intimately into our everyday life. Appreciation and importance of the responsibility of driving the motor car is also on the increase. The automobile has taken its all-important place alongside of other means of transportation by rail and water.

Highway improvement programs are

being planned to give maximum service to the largest number of people at a minimum possible mileage. There is an increasing appreciation of the need of preparing engineering and administrative organization for the building of satisfactory roads. True economy concerns the whole of the people and must cover the total cost of highway transportation.

It has truly been said that the service of the nation to its people is measured today in terms of transportation. The key to the economic independence and maximum wealth of the nation lies in the facilities of transportation and communication. Where these are most effective the people are healthiest and happiest. Where nations improve their facilities of communication, there follows a rise in the standard of living, in the average of education, of health, and the economic status of the people.

WIDESPREAD DEPENDENCE ON MOTORS

In this country we no longer measure distances in miles, but in minutes. Half the nation rides to work daily in motor vehicles, or uses them for business and play. Practically all of us eat food brought by motor vehicles, wear clothes dependent at some point in their manufacture upon motor transport, and live in houses being built of materials hauled by motor truck. Railroads are turning to motor trucking companies for assistance in hauling their local and short haul freight. The influence of the automobile and motor truck is pronounced. The farmer has in many instances turned away from the old system of producing corn, oats, wheat, and hay for sale. The market of these was a seasonable proposition. Instead, they are shifting to dairying and the raising of poultry and vegetables. New

business is generated by motor truck operations extending into fertile dairy-ing territory, through which service is operated daily with a rail station on the main line of a terminal.

That there has been a great social and economic evolution, resulting from the adoption of the motor vehicle as a universal means of transportation, is an indisputable fact. That it has brought changes in our methods of living, social intercourse, daily habits, and business practices and relations, although very often largely intangible, are none the less evident and certain. That it contributes to the happiness of the human race, far beyond anything that has ever been produced before, is not capable of successful contradiction. Like the telephone, motion

picture, radio, and many other similar mechanical appliances of modern life, the motor vehicle has become an integral part of the life of the individual and his family. It would be hard to conceive what would be the plight of our people if they were suddenly deprived of this means of conveyance. The automobile itself is an expression of the desire for a larger and better outlook upon life. It breaks down the unfriendly barriers of the community, the state, and the nation through constant inter-communications. It has given new life to the city dweller and to the farmer, and today occupies its deserved place in the results it has produced in the material and spiritual welfare of the people of this country and the world.

Sales Managers' Quotas

By C. N. STONE

The Babson Statistical Organization

IT is hard to find any business men who will agree on what a sales quota is or how it should be figured. Why is this whole subject so badly muddled? Mainly because there are three different types of quota; each type serves its own particular purpose.

(1) *The Ultimate Quota or Sales Potential.*

This is an estimate of what sales should be in a given territory when it has been developed by adequate advertising, sufficient salesmen, satisfactory trade connections and other requisites. The executive who sets up such a quota does not expect to reach it this year or next, but in course of time, eventually, ultimately. It represents an ideal, a distant objective, a final goal, perhaps a "saturation point."

(2) *The Immediate Quota or Budget Estimate.*

This is an estimate of what sales in a given territory should be in the near future (next year, for instance, next quarter, or next month). It takes into account not merely the territory's purchasing power, but also the number of salesmen operating in it, the amount of advertising, past sales, present prosperity or depression, and other qualifying factors.

(3) *The Psychological Quota or Salesman's Task.*

This is the figure which the sales manager assigns to a territory as the mark which he asks the local sales force to equal or exceed. It is often based on psychology rather than

statistics. That is, some managers believe that certain of their salesmen work most effectively when aiming at an exceedingly high mark; while it may stimulate other salesmen more to have a quota which they can surpass by a wide margin.

1. THE ULTIMATE QUOTA OR SALES POTENTIAL

The least expensive and most satisfactory way to work out this quota is to use the actual sales record of certain territories which are selected as a standard. For example, your annual sales in Michigan are \$60,680; this is \$16.40 per thousand population. Your sales in Ohio are \$70,180; this is \$12.10 per thousand population.

In Michigan you have been selling goods for several years. Your local sales force consists of a large number of well-trained and experienced men, whom you regard as among the best in your organization. You have persistently advertised in this state. You have made numerous and desirable trade connections. Altogether you have every reason to believe that in this state you are doing a thoroughly good job.

Much the same applies to your distribution in Ohio. Moreover, as can be determined from the records, your sales per thousand population in these two states are high compared with your other territories.

Therefore, you decide that the performance of these territories will be taken as standard with respect to sales per thousand population. Of course it would be possible to use the Michigan results alone and set up \$16.40 as

the standard. It is usually preferable, however, not to pick the very highest state, but rather to take an average of at least two states. Averaging, therefore, \$16.40 and \$12.10 we get a figure of \$14.25 as the standard. To determine the sales quota for any other state, simply multiply its population (in thousands) by \$14.25.

For example, the quota of Georgia with a population of about 2,896,000 would be in round numbers about \$41,000.

The objection immediately arises that population alone is not a suitable basis. Michigan and Ohio, for instance, with their great industrial development may offer a far larger market for certain products than does some state such as North Dakota, for instance, which is mainly agricultural.

Therefore, the next step is to consider also some factor other than population. For example, you can use the number of wage workers in the manufacturing industries or the value of manufactured output, or the cost of materials used in manufacture. Following the same procedure as suggested above, you can set up standards for sales per thousand wage workers, or sales per thousand dollars of manufactures, etc. There is almost no limit to the number of different factors which can be embodied in the quota.

To continue the illustration, Michigan sales of \$60,680 are \$1.75 per \$100,000 of manufacturing output; and Ohio sales of \$70,180 are \$1.37 per \$100,000 of manufacturing output. Averaging \$1.75 and \$1.37 gives \$1.56 as the standard.

Referring again to Georgia as the territory for which we are trying to establish a quota: The manufacturing output of this state is \$693,237,096; multiplying this (in hundred thousands) by our standard of \$1.56 gives \$10,814 as a quota. It is evident that by ap-

plying these various standards we can work out a large list of quotas. Each of these will have reference to some particular factor, such as population, value of crops, income tax returns, etc. In every case the quota figure will be obtained first by setting up a certain standard performance and then applying this standard to the territory which is being evaluated, as already explained.

The final step is to take an average of the quota based on population, the quota based on automobile registrations, the quota based on bank deposits, and all the other quotas based on as many other factors as you wish. This average may be unweighted; that is, each figure may be counted only once. Or, the average may be weighted by counting certain important figures more than once.

For example, in the case of Georgia the average of the population quota (\$41,000) and the manufacturing output quota (\$10,814) is \$25,907.

It is evident that this method has certain practical advantages. It rests upon the real sales record of what actually has been done, rather than upon theoretical conjectures of what ought to be done. Second, it enables you to include in the quota every desired factor capable of statistical measurement. Third, it is short and simple; inexpensive; readily understood by everybody in the organization. Fourth, all the figures are entirely in terms of dollars or some real and familiar unit rather than abstract index numbers.

2. THE IMMEDIATE QUOTA OR BUDGET ESTIMATE

Everybody in the organization may admit that ultimately sales in Georgia should be \$25,907 or whatever the figure may be. For the near future, however, any such result may be out of the question. Georgia may be covered

by only one salesman. Advertising may have been started only recently. There may be many reasons why Georgia's immediate quota should be much below \$25,907 representing the distant goal.

The quota under consideration now is an estimate of what sales in Georgia will be this coming year. We want this figure to be sufficiently sound to serve for budget-making purposes.

The procedure is to take some figure as a starting point, say last year's sales or the ultimate quota, or some other basis; then modify this according to current conditions.

Among these qualifying conditions, there is the matter of local prosperity or depression. One of the best ways to handle this phase of the problem is with the aid of a graphic chart. For example, if you select check transactions as a good general measurement of a territory's business activity, you can readily chart these figures monthly over a period of years. On the same chart can be plotted your monthly sales in the territory. An inspection of this chart will often disclose a fairly constant relation between the movements of local business and the corresponding fluctuations in sales.

For instance, it may be discovered that when business is running 10 per cent above the same period a year ago, your own sales will show an increase of 20 per cent. On the other hand, when local business is running under last year by 15 per cent., your own sales will show a decline of 30 per cent.

In other words, your own sales tend to swing in harmony with general business, but through a wider arc or greater amplitude. Suppose that this proves to be the case. You are setting up next year's quota for some territory. Local business in general is moderately weak in trend. Knowing from past experience that such moderate weakness

means a pronounced drop in your own sales, you will take the base figure (last year's sales, the ultimate quota or some other basis) and mark it down by a large amount. Or, if the trend of local business is moderately strong, you will mark up the base figure. In short, a chief essential in determining a quota for any locality is not merely to decide upon the trend of local business, but also to know from past experience what will be the reaction upon the sale of your own product. Often a simple chart will answer this question with sufficient accuracy for all practical purposes.

Likewise the base figure can be adjusted upward or downward in proportion to the local advertising appropriation, number of salesmen to be employed, and other influences.

It is a question whether these adjustments should be made by elaborate and refined formulas or by "inspection." Since the whole procedure is necessarily an estimate rather than a precise calculation, and must contain at best a large element of judgment, it is probable that the simple methods are preferred.

For instance, if you are using previous sales as a base, these can be charted on ratio paper and the curve can be projected freehand. This sounds like a crude operation; but in all this work with sales quotas it must be remembered that many of the data themselves (e.g., value of building permits) are hardly more than approximations.

3. THE PSYCHOLOGICAL QUOTA OR SALESMAN'S TASK

The sales manager will usually want to have at hand both the final quota and the immediate quota, and he will use these figures as an aid in setting up what we have called the psychological quota. In fact, some sales managers may prefer to assign to their territories

the actual budget estimate as the sales task which the territory is expected to perform.

There are other sales managers who find it better to use these statistics as a starting point perhaps, but will modify them in accordance with the temperament of the local salesman. Doubtless some salesmen put forth their best endeavors when driving for a mark which seems almost out of reach. The satisfaction of beating their quotas may be the greatest stimulus to a salesman of another type. Sales managers have sometimes even gone so far as to let the salesman set his own quota, with the idea that a man will make especial efforts to make good on what amounts to an informal pledge.

In some instances, sales managers have assigned purely psychological quotas, having neither an ultimate nor immediate quota as a basis for their judgment. It is an exceedingly rare type of sales manager who has continued success with such an arbitrary method. The present tendency is distinctly away from "subjective" statistics.

CONCLUSION

A great deal of needless misunderstanding and friction can be prevented by recognizing that in most organizations there are three groups.

First, there are the executive and administrative officers who are continually looking several years ahead and planning for the long swing. For this group, the ultimate quota or sales potential is necessary. These men want to know, so far as can be foreseen, the logical limit of the business.

Second, we have the group especially

concerned with making up and enforcing a budget for the coming year. It is for this group that the immediate quota or budget estimate is especially useful.

Third, we have the officers of the sales department, in whose equations the human element so largely figures. For this group the psychological quota or salesmen's task is sometimes expedient; but the closer it clings to a statistical basis, the greater its value.

Instead of attempting the unnecessary and almost impossible feat of persuading all three groups to accept a single quota, there is much to be gained by clearly recognizing their varying requirements and by giving to each group a quota designed for a distinct and specific purpose.

It is a matter of common observation and experience that in order to be most effective a sales quota of any kind must have simplicity and reality. A successful quota is one which is understood not merely by the statistician who compiles it, but by the executive who applies it, and the salesman to whom it is assigned. The most effective figures are those in terms of dollars, bushels, tons, or other real units, or percentages thereof. Many statisticians have already been cured of the "index complex"; the epidemic will eventually subside; and quotas as well as other business figures will become plain instead of ornate.

The foregoing notes are taken from many years of contact with concerns that are using sales quotas. The writer's experience can be epitomized in the observation that it is easy enough to devise sales quotas and that the essence of the proposition is to make them pay.

The Chain Store and Distribution

By WALTER S. HAYWARD

Author (with Percival White) of *Chain Stores; Marketing Practice*

THE chain store has been one of the principal factors in the movement towards the simplification of distributive functions. As such, it has caused pronounced concern among manufacturers, jobbers, and retailers. It has been the subject of litigation, of recrimination, and of endless discussion. The manufacturer has hesitated to make full use of the chain store system as an outlet, because of his desire not to offend the members of his regular distributive systems. The jobber has made open war upon the chain because it has frankly attempted to supplant him, and to some extent has done so. The independent retailer has often failed to recognize the decisive line of division between price merchandising and service merchandising.

Every concern which ultimately markets its products to the consumer is vitally affected by the status of chain retailing; more particularly with the position which it will occupy in the future. The following pages contain a brief résumé of the present chain store situation in the fields of retailing where it has become well established.

TRENDS OF DEVELOPMENT

The most rapid growth of the chain store has taken place in the grocery, drug, five and ten, dry goods, tobacco, and confectionery lines. It is essential to understand the reasons for this:

1. The public demand in these lines is well defined; is not subject to great fluctuation in times of business depression; and in each case there is a "repeat market."

2. The articles handled fall mainly in the class of necessities, or semi-necessities. That is, they are regarded as essential by a proportion of the market large enough to insure a steady demand.

3. Because of the standard character of the stocks, and the broad demand, a high rate of turnover may be maintained, which allows the chain to make a small but steady margin of profit at frequent intervals.

4. Buying or purchasing is standardized and centralized at headquarters.

5. Since articles are of small unit value, and not bulky or heavy, the chain store is able to operate on a cash and carry basis—a factor of great importance in chain store growth.

6. Merchandising is largely a matter of display and price advertising.

7. Standardization of methods has made it possible to centralize management at headquarters and control member stores under managers who, while they may have a pecuniary interest in sales made by their stores, have nothing to say about the conducting of them.

The application of the chain store idea to the retail fields which handle but one or two lines has been attended by new problems, and the outcome is not certain as yet: This applies to chains selling shoes, hats, hosiery, shirts, sporting goods, radio supplies, or millinery. It excludes the manufacturer's chain, which has its own problems to meet. The specialty chain must consider:

(1) The greater diffusion of the market, making it necessary to resort to advertising to obtain sufficient volume of sales. Shoes, hats, and hosiery are not purchased so frequently

as groceries and other articles of daily need.

(2) The necessity, in some cases, of operating on a service basis, thus bringing the chain directly into competition with the independent.

(3) The difficulty of centralizing management, when the several links of the chain are divided by wide intervals of space.

(4) The greater degree of salesmanship required. The selection of a hat, of a pair of shoes, or of a radio set, requires a much higher degree of salesmanship than is required in the type of chain which sells purely by display, or on a definite demand from the customer.

NON-CHAIN FIELDS

Finally, there are certain fields in which the chain has made practically no headway, such as hardware, jewelry, and perishable food products.

The hardware field has witnessed several strategically planned attempts to inaugurate chains. Some years ago, the National Hardware Chain failed to make a success. Recently, the Winchester Stores took a flying start, well-heralded, well-located, and well-advertised. But, like the drug store chain, which specializes in toilet articles, soda water, etc., the hardware chain finds that it sells little hardware, and has rather the character of a sporting goods chain.

The jewelry field is also practically unoccupied by chain systems.

In other words, in those fields where the stock is very large, where the turnover is necessarily small, where it is difficult to cut prices, the chain store does not flourish.

The lack of chain success in the meat and fruit trade would seem largely due to the difficulty of supplying the various stores in accordance with demand. Furthermore, local sources

of supply often have to be utilized and the uniformity of stock, which is so important a part of chain system, cannot be maintained.

THE GROCERY FIELD

The best view of chain store activities may be obtained in the grocery field. The familiar red fronts of that Goliath among chains, The Great Atlantic and Pacific Tea Company, are to be seen almost from one end of the country to the other. Hundreds of smaller chains have wide local or sectional distribution. The independent grocer is an enemy of the chain only until he has opened his second store.

It is important to note to what extent the grocery trade has been taken over by the chains. Ten years ago the chains were confined mainly to congested city districts. Five years ago they had spread to the suburbs. They have now reached the small town and rural community.

The grocery chain is definitely committed to a merchandising policy which includes "loss leaders" and private brands. It is also committed, however, to the policy of selling what the public demands. The chain takes the attitude that it is the function of the manufacturer to create public demand for his product. If he has not the capital nor the desire to do this, the chain cannot be induced to do it for him. The articles on the shelves of the grocery chain must be their own salesmen, and they must move, or make room for those that will.

The manufacturer who sells to the grocery chains must perforce be a national advertiser. The volume of his sales will depend upon the success of his advertising policy. He must compete with the chain's own private brands which, although unadvertised, are no mean rivals. They are either

sold at a lower unit price, or a larger quantity is given for the same price. Furthermore, the chain takes every precaution to see that the quality of its own brands is exactly as represented.

What the manufacturer and jobber are primarily interested in knowing is the future potentialities of the grocery chain. The present trend is briefly this: All secondary considerations put aside, the chain store sells on a price basis; the independent grocer on a service basis. Each has its own clientele. When a chain store opens in a new locality, it will automatically obtain its quota of trade, provided there is no other chain competition. The independent retailer will have to resign himself to seeing a certain portion of his trade leave him. If there are too many independent retailers, the weaker ones will succumb. The grocery field, however, will only support a certain number of stores selling on a price basis. In the urban and suburban sections, this demand has already been taken care of. The great extension of the grocery chain at present is in the small town and rural community.

As in every case where there is great stimulation to growth, there is a tendency to go beyond the mark, with a consequent period of readjustment. Signs point to something of this sort occurring in the grocery chain field. There is a new phase of competition between chain and chain. It is the direction which this competition takes which should be closely watched. Obviously price cutting is no solution. Such a policy can end only in the survival of the strongest chain, and the absorption of its weaker rival.

Suppose, however, that some chain system announced its intention to operate on a service basis. "It cannot be done," says the sceptic. "Once remove the price attraction and the

chain cannot survive against the individual service of the independent proprietor." This may be true, but it does no harm to point out that the chain still would have the advantages of combined purchasing power, of centralized management and of standardized retailing.

THE DRUG CHAIN

The situation in the drug field is by no means settled. To date, the large drug chain has been mainly a downtown proposition in urban centers.

The feature of its policy has been its ability to merchandise articles never before associated with drugs. It will sell anything from canary birds to hairnets, provided there is a demand for them. It has departmentized its activities, and follows close on the heels of the department store in its scrutiny of customer habits and traits, consumer preferences, and other factors.

Like the grocery chain, the drug chain cuts prices on standard articles for "loss leaders." It may have private brands of its own, but so many of the drug chains consist of a few stores only that this is not the general rule. While it is not possible to reduce stocks to any small number of items, there is a settled endeavor to avoid untried innovations, and to carry only articles for which there is an established demand. The turnover of the drug chain, for this reason, is in excess of that of the independent drug store.

Like the grocery store, the true drug store is a neighborhood proposition. But the obstacles in the way of chain operation are greater because of the variety of stock necessary to carry, and the difficulty in maintaining adequate turnover without the large volume of trade secured only in downtown locations. There are, however, small chains which endeavor to operate drug stores in suburban locations, and which

are moderately successful. There are undeniable possibilities along this line, but the great opportunities present in the grocery field are lacking.

The United Drug Company has utilized the chain idea in its extension of Rexall agencies. Instead of operating the store itself, it has induced the proprietor to sell its brand, and assists him with publicity and dealer helps.

THE FIVE AND TEN CENT STORE FIELD

The five and ten cent store chains are among the most interesting of all. They have come to be All-American institutions, and no longer exist merely for the lower classes of society. Their tremendous selling power, based almost entirely on the display of the article, is well worth the manufacturer's careful attention. Purely as a source of sampling, many manufacturers of branded articles have found them to be advantageous. Other manufacturers have been able to dispose of surplus production to advantage through such channels. Still other companies have turned their entire energies to supplying the needs of the five and ten cent chains.

The five and ten cent field is one where there is virtually no independent competition. It would be practically impossible for any organization without huge buying power and great volume of sales to provide the variety and assortment of values now obtainable on the counters of the five and ten cent store.

Unlike the grocery and drug chain, the five and ten cent store originated in the small town, and only spread to the city in the later stages of its development. Its extension is, however, limited by the necessity of a certain minimum population in order to sustain a stipulated volume of sales.

The Kresge policy of raising the five and ten cent limit to a dollar, or the

Grant policy of selling articles at even a higher value, tends to bring the five and ten cent chains close to the dry goods chain.

THE DRY GOODS CHAIN

There are two aspects of the chain situation in the dry goods field. In the first place, there are the organizations, like the J. C. Penney Company, which operate in communities of moderate size, which standardize operations, and sell from a limited stock of staple goods. Such chains fill a definite need in towns and cities which cannot afford to support urban department stores. They give the consumer a choice in up-to-date merchandise which the strictly local retailer would not, under ordinary conditions, be able to do.

The greater qualities of management required in the dry goods field make it necessary to give the local manager a larger degree of control than in most other chain fields. In the case of the Penney stores this amounts to a one-third interest.

The advantages of chain store organization have been recognized by certain department store groups, in so far as buying and financial control is concerned. While not chains, in every sense of the word, they pool their resources in making purchases, and are thus able to realize substantial economies. The local operations are, however, usually carried on separately.

TOBACCO CHAINS

The manufacture of tobacco products lies mainly in the hands of a few large concerns. The tobacco chain developed and grew, much as the grocery chain, from a hitherto unexpressed consumer need for a store which would provide fresh tobacco goods at reasonable prices. The United Cigar Stores was among the

first of the chains to give careful attention to the small niceties of retailing such as the entrance flush with the sidewalk, the "thank you" with every purchase, the psychology of the open door, and the lighted interior. It stressed the arrangement and economy of space so that one man operation could take care of a maximum number of customers. It laid careful plans to secure the most desirable locations, realizing that the tobacco store, like the candy store, depended for practically all its business on the passer-by.

The present situation in the retail tobacco field is that in the city the chain store has practically supplanted the other retail tobacconists, while in the small towns and suburbs, tobacco is handled by the news merchant, the grocery store, the drug store, or perhaps the general store.

THE CONFECTIONERY FIELD

The candy chain has hitherto been another city proposition. It is no uncommon thing to find on the same block five or even six candy stores belonging to different chains. While candy is a convenience article and purchased, therefore, wherever the buyer happens to be at the moment, and while most candy is purchased by men who are notorious for buying from the nearest place, there is a definite difference in the various brands. Hence the efforts on the part of candy manufacturers to impress the public with the excellence of some particular brand.

A great many confectionery chains are owned by manufacturers such as Huylers, Lofts, or Page & Shaw, or else they control their own factories, as do the United Retail Candy Stores.

Since the impetus afforded by the inauguration of prohibition, the candy field has been fairly well filled so far as chain systems are concerned. The

candy store not only has to overcome competition from other candy stores, but also the competition of drug stores, news stands, groceries, and other retailers where candy is to be purchased.

OTHER FIELDS

The chain store system which sells clothing, shirts, shoes, hats, stockings, waists, millinery, or any other line of wearing apparel, usually operates as the exclusive agency of one manufacturer's line, or else serves as the retail outlet of some particular manufacturer. While it sells articles which come under the classification of necessities, the intervals between a purchase and a repurchase by one individual are great enough to confine the existence of such chains to the cities.

The Thompson chain in Chicago, and the Waldorf chain, with headquarters in Boston, are samples of what aggressive merchandising tactics can do in the restaurant line. The Childs Company also shows what may be accomplished, even where table service is provided.

There are several fields which have not been covered in the above survey, such as the sporting goods, the radio, and the bakery chain. The radio chain is one of the latest arrivals, and bids fair to prove successful provided that stock can be standardized sufficiently to insure a fair turnover. They present somewhat the same problems as do automobile supply stores, where there are a great many brands and no definite demand developed on the part of the consumer.

CONCLUSIONS

As far as can be discerned at present, the situation in the chain store field at large is somewhat as follows:

(1) The presence of the chain store has been accepted as an accomplished fact by the majority of manufacturers

and jobbers. There is a growing tendency to admit that an organization which does not give service is justified in charging at a lower rate than one which does give service.

(2) The establishment of new chain stores has been particularly noticeable in small towns and rural communities.

(3) There is evidence to show that in certain retail lines the chain store growth is approaching its peak, notably

in the grocery field. While there will always be a normal growth, based on increase in population, the actual establishment of new units cannot be extended much further.

(4) The character of chain store activities in the future will be largely determined by the character of competition between chain and chain, and not between the chain and any other agencies.

The Justification of the Chain Store in Our Present System of Distribution

By E. C. SAMS

President, J. C. Penney Company

THE history of retail selling is a recital of ever-changing methods and conditions. Evolution is at work here as elsewhere. It would seem that as soon as men began to consider, they recognized the necessity for improving the mechanics of trading.

Of course we have long since passed from that state where merchandizing consisted of an isolated barter between two people, the buyer and seller. The conservation of time and energy has made necessary the elimination of many superficial practices in selling. The Old World custom of placing an unreasonably high price on every commodity offered for sale, and then chromatically lowering the figure according to the judgment and demands of the buyer, proved to be too tedious an operation for the volume of business conducted in the Western World.

In many quarters, however, the desire to secure excess profits was not abated. It became customary for high prices to be asked on the basis of correspondingly high sounding claims concerning the merit of the merchandise offered. It is apparent that most men were in business because necessity compelled them to do something, and they, not caring to do more than was absolutely required of them, sought long profits and accepted fewer sales because less energy was thus exerted in the effort to "get along." Not at all strange, then, that there should have come into existence the slogan of "Let the buyer beware!" However unmoral as a code, such sharp practice showed up some customers for the

dupes they were and quickened the wits of others, compelling them not only to be able to recognize comparative values on the market, but to insist upon receiving full returns for all expenditures made.

As I recount the history of selling, I am ever puzzled over the opposition which men have offered to natural law. I am compelled to admit that the unwise methods just mentioned may yet be found in operation with altogether too large a percentage of merchants—all of which serves to defeat the best interests of such operators and their many customers as well. Countless sales devices have been employed in an endless effort to out-trick the customer at the market place. Doubtlessly certain unscrupulous merchants will always persist in this policy of value-deception. But we have reason to believe that America has witnessed the high flux of such practices and that future years will show even greater development of the principle of *Service in Selling*. The Golden Rule is being proved practical in business.

RIGHTEOUSNESS IN BUSINESS

Very gradually, merchants are being compelled to see the futility of dishonest dealing. The fact that honesty in the smallest sale actually pays, comes to them as a most wholesome reaction after their many unsatisfactory experiences of previous years. It is to be regretted that scarcely two generations back, guarantees were to be scanned quite as carefully as were the goods themselves, if perchance any

dependence at all was to be placed in them. And the slogan "Satisfaction guaranteed or money back!" dates its beginning within the memory of every one of us. Thus have we come to see the wisdom of forsaking the ways of Shylock. In almost any village in the land, a customer accepts the merchandise offered him on the faith of the average merchant's guarantee. One hundred per cent of such confidence has not been secured, but it is well to note that the tendency is ever upgrade, with the merchant constantly alert to assure every customer a square deal and honest values.

It is well to note that competitive selling has been a most vital factor throughout the evolution of merchandising. Meaner spirits, desiring to remove the necessity for more aggressive selling on their part, have attempted by various devices to undermine the confidence of purchasers concerning goods displayed in competitive markets. While many merchants have not entirely quit the practice of making questionable comments regarding the merchandise of a competitor, yet the reaction is wholesomely in favor of keeping the customer interested in what is being shown him by virtue of the positive salesmanship employed. And a commendable riddance it is, too.

In the early period, raids on store or home, physical injury to competing merchants and confiscation or partial destruction of stocks were resorted to by bolder merchants who desired to eliminate all competition possible. Sheer laziness, hatred, and jealousy were thus permitted to inject themselves into the commercial world, all of which delayed the arrival of our present era of industry and aggressive selling. How strange it now seems that the merchants of a community should have considered themselves

natural enemies of each other because they chanced to be engaged in the same kind of business. Only in recent years have many of these men been open-minded enough to greet their competitors when they chanced to meet; in fact, the idea that they might profit mutually through co-operation is the product of strictly modern methods of selling. What a long route these men have traversed in their thinking before they realized that they could afford to stop their petty, undermining influences as a part of their competitive policy. To their customers it must have been a most disgusting experience, and we are certain that they purchased of such merchants simply because they were in need of the merchandise which could be secured only through these men.

More recently, certain carefully planned combinations of business were arranged evidently for the purpose of monopolizing the sales in their respective fields. It was charged by the public as well as by competitors that these interests sought first to remove competitive effort from the field by selling below actual cost of production, in order that inexcusably high prices might then be charged for these same commodities after the field had been cleaned of all effective competition. This policy clearly indicated cut-throat competition with absolutely no regard for the interests of the buying public, and the eventual adoption of a selling schedule which meant inexcusably long profits to be exacted from helpless customers—a profit-for-profit's sake policy regardless of the values given the customers in exchange for their money.

It was natural that some such legislation as the Sherman Anti-Trust Law should have given expression to the demand of the public for a just and reasonable sales protection. And it is

not to be wondered at that all large business enterprises are often looked upon with suspicion and not infrequently subjected to unjust criticisms because of the selfish methods formerly employed by those unscrupulous interests. Indeed, I am frank to say that in the early days of our own organization it was freely predicted that we sought to monopolize the field of retail selling only to inaugurate a later policy of unscrupulous price setting and high-handed money grabbing. What a pleasure we have derived from this privilege to disabuse the minds of such people and to show them that our first policy was indeed a permanent basis on which we propose to transact business.

However, the present generation witnesses a growing consciousness of what I am pleased to call righteousness in business on the part of many of our leading merchants. They have come to see that they do not profit by trying to prevent competitors from getting business nor by trying to exact long profits from customers; and they have learned to give more careful attention to their customers and to the type of service the public has a right to expect. Thus they are rewarded with at least their proportionate share of the community's patronage.

These stages of development in merchandising are well known to all people. I mention them only to show that much of past effort as well as lack of effort has served to hinder the interests of the actual consumer. It might well be called *lost motion* in business. Indeed we scarcely realize yet the enormity of the transgression which merchants formerly perpetrated upon customers, openly demonstrating by their attitude that they thought very much more about the profits they hoped to receive than they considered the quality of service rendered.

In comparison with such methods, the modern chain store system of retailing is indeed a far cry from the day when villagers depended upon the traveling peddler's pack for supplying their common merchandise needs. However, I am prompted to say just now that what I have to offer as a justification of the chain store as a factor in our present system of distribution shall be given from the viewpoint of the J. C. Penney Company's experience. I am conscious of the fact that there are many types of chain store systems in operation today (one estimate placing the number of such companies in excess of two thousand), and I am not therefore inclined to extend my convictions so as to cover all similar organizations, for I cannot know to what extent they are operating in accordance with universal law. Many people are still prejudiced against multiple effort in business. In their thinking they are inclined to believe that all major business projects are based on the sole desire to gain maximum profit and to give minimum values in return. I am frank to admit that this biased thinking has been used in arguments opposing chain store systems. I propose therefore to show:

1. What we try to give.
2. Our type of competition.
3. What we hope to receive.

SERVICE IN SALES POLICY

As a class, merchants are learning that, while honesty may be a good business policy, yet it *alone* is not sufficient to secure a frequent turnover of stock and win friends for future sales. They have been forced to turn to the copy-book maxims for *safe* standards in selling and at the same time they have found it advantageous to devise *new* and *better* methods of selling. Salespeople are constantly reminded

that personal interest, genuinely experienced, must be a part of the sales-work. They are told that every customer is entitled to receive courteous treatment; that friendliness and personal service invested in an immediate sale is but the beginning of a possible number of future sales.

When our first store was opened to the public in 1902, Mr. Penney inaugurated his policy of *Service in Sales* on exactly the same basis as that on which we still do business. We are convinced that our strict observance of the Golden Rule has been of inestimable value to our customers where we operate, and a never-ending source of satisfaction to us in our work.

No merchant has a right to look upon his business solely as a source of profit. He depends upon his day's labor as a source of income, but he has no reason to expect the consistent support of his community unless he reciprocates by first showing a jealous interest in the needs and preferences of that community. He must realize that buyers and sellers no longer exist in equal numbers. Those who have commodities for sale may live in remote regions; qualities and designs may vary; he is therefore privileged to visit the market in the interest of his customers and select for them, since they cannot do this for themselves. He is an agent for the public; self-appointed I grant you, but entitled only to remuneration in exchange for the actual service rendered.

The customer is not only alert lest his money be given in exchange for inferior merchandise, but he is ever desirous that his money shall be placed with the particular merchant who succeeds in showing him the greatest value for the money spent. Thus, the average merchant has turned from the age-old policy of indifferent buying and unscrupulous selling, and he now

strives not only to be frank in his selling, but skillful in his buying. If he is farsighted, he knows that he is entitled to only a fair return for his services. And like any other honest worker he is willing to give personal interest and effort in exchange for every penny of profit which comes to him.

Merchandising has come to be a highly specialized form of selling in which the customer's comfort and viewpoint is most carefully considered. The merchant therefore should be paid for his service as an agent of the buying public; and his success depends largely upon his ability to interpret the needs of his community in quite the same manner as any other representative of a group of people focuses his attention upon the kind of service he is expected to render. Thus this agent has come to see that in rising above the profit-for-profit's-sake policy and in accepting only a just return for each sale made, he is not only putting his business on a higher plane, but he is actually promoting the cause of efficient distribution—for which the public is justly grateful.

There is another type of service being rendered by the chain store which is characteristic of multiple effort, namely, creative service. The public is always in need of many commodities which are too high priced to be popularly available. The demand exists for them, and the directors of chain stores spend much time and energy in the attempt to produce additional articles of merit at cheaper prices through the elimination of inefficient methods of manufacture and extravagant agencies of distribution. Scores of such articles are now on the market because chain store management has substituted scientific methods for previous slipshod procedure, and out of such creative labor the public is greatly benefited.

The preceding statements represent the highest standards merchandising has ever been placed upon. We recognize them to be wonderful theories on business and still more commendable when actually applied. It is worthy of note that only as a sales policy tends to estrange itself from these recognized principles does the economic reward show a corresponding decline. In other words, much of the present criticism, which is apparently directed against the bulwarks of Big Business, may be shown to have grown out of past abuses of the public confidence as perpetrated by selfish men. There need be no such criticism made of modern merchandising methods and, I am frank to say, this has been reduced to the minimum where a clean-cut sales policy is in operation.

It is quite natural that some so-called "independent" merchants should resent the purchasing power of a chain store system. Has it not been ever so? When power machinery was first introduced in the factories in England, were not protests registered by every craftsman? He was sincere in believing that machinery had usurped his place. He felt it his duty to destroy all power machinery as a matter of self-preservation; but while many spent themselves with the attempt to destroy a new order, there were others who set themselves to the task of learning how to operate the newly invented devices, and they quickly discovered that the work was more enjoyable and the remuneration quite as good, in many cases *better* than under the old system.

The path of progress will always be lined by those who, refusing to catch the step of the new era, declare that their rights have been trampled upon. At present, if any criticism is being made of the chain store system or distribution, it is principally on the

part of those who have failed to see the opportunity for rendering a superior type of service in their communities. It is significant that the customer multitudes have no criticism. *They are being served!*

CAUGHT WITH OVERSTOCKED GOODS

There are many well-meaning merchants who do not know what it costs them to conduct their business. Of course they can find out after the year's record is closed, but I mean that they have no clear-cut sales schedule by which they may know how to figure a reasonable profit on an article sold. It is therefore the custom for such men to go to the markets, select such merchandise as in their judgment will be well received by their patrons; eventually a price is put upon each article which *it is thought the customer will pay*. Frankly, if there is an error in the price set or, for any other reason, the merchant finds himself overstocked, he immediately resorts to a special sale and thus attempts to solve his problem. This practice is so commonly accepted as a necessary step in merchandising that much surprise has been shown over our adoption of a no-special-sale policy. And yet nothing could be more absurd. The idea that an article should be sold for what it will bring instead of for what it is really worth, savors mightily of the auction stand and frontier days.

For illustration, let us assume that a merchant has an oversupply of a certain grade of ladies' hosiery. He marked this number \$1.98 when it was first displayed simply because he thought he could get that much. But with the passing of weeks, he becomes fearful lest he be caught with what is termed "frozen stock," and so he reduces the sale price to \$1.48, hoping thereby to offer an added inducement to prospective purchasers. Now if

the hose was really worth the first price charged, then his faulty judgment will eventually lead him into financial difficulties, but if he really overcharged the first purchasers then they have a genuine grievance against him and should be more wary when making future purchases in his store. In either event, he has displayed faulty judgment and poor salesmanship, and I am unable to see why such methods should still be employed save as a last resort to meet the demands of creditors. Surely if we were to render no other service than the establishment of the "one-price" plan, our organization would be fully justified for its existence.

GUARDING AGAINST OVERSTOCKING

It is well to remember that a part of our economic policy depends upon the ability of each manager to interpret the buying capacity of his community. He is expected to make a careful survey of the needs in every staple line and to determine what price his customers are *able to pay*. We then go into the market with this information and, knowing just how much it will cost us to market our merchandise, we are able to figure all purchases on the *cost-plus* basis. In other words, when we have listed the cost of selling a certain number in hose as previously mentioned, together with a reasonable margin of profit for our services, we then know just how much *value* we may go after in the market in order to be able to offer a consistent value at \$1.48 or \$1.98 or whatever figure that particular manager designates as the priced article in greatest demand by his customers. And at all times it is our earnest desire to pack every sale with maximum value both in materials and in workmanship. Nor must it be forgotten that we are constantly alert to prevent overstocking

in any community. One of the most carefully watched policies in all our selling is that of buying in quantities only as the sales warrant it. If we are able to conduct our business without having money tied up in slow-moving stock, we automatically effect a saving for our customers, because we are in a position to relieve them of the interest on the money which might be tied up in "frozen stock," if our methods were less efficient. Contrast this policy, if you please, with the all too prevalent system of unorganized purchasing and the get-all-you-can selling method. The chain store system of distribution has thus contributed certain efficient methods of selling from which millions of customers profit.

Again, instead of finding it necessary to scatter our purchases of any commodity such as hosiery among many numbers, we prefer to focus on those few styles which are in greatest demand, and buy stock in proportion to that demand. This insures us rapid turnover in the numbers carried, and you must remember that this economic gain is turned back to the customer in the additional values offered, for we prefer to take only a fair profit on each sale. Then, too, we aim always to co-operate with the manufacturers in contracting for their output. It is readily seen that if we focus on a few numbers in hosiery, our sales volume is larger in them than if we carried a greater variety. Therefore, when we contract with a hosiery manufacturer, we are in line for a large consignment of goods and the manufacturer, being able to focus his mills on fewer numbers, is in a position to sell at a lower price because his own overhead has been reduced by our type of order.

Such a policy is highly impractical for the small jobber because he is attempting to suit the tastes and fancies of all types of merchants through-

out his trade territory, and he is compelled to carry a greater variety of numbers in every department of his stock. His turnover is therefore less rapid, and the prices he has to pay are higher because he cannot assist in bringing about the advantageous reduction of the numbers to be manufactured. Secretary Hoover has recently pointed out the necessity for this type of manufacturing revision, and we are already convinced that such procedure should be encouraged in every line of business.

Thus, is a cycle of reciprocal service being set in motion. The greater the volume of sales, the greater the values we can offer *at the same price* and with no greater profit per sale for ourselves. In this way we are able to serve multitudes who need to buy economically and who by necessity are limited to a certain volume of purchases each calendar year. Is such a policy justifiable?

OVERHEAD EXPENSES CUT

Then, too, we have reason to believe that our service may be more economically rendered because of the elimination of certain middlemen such as the small wholesaler and jobber who ply their trade among long-profit and few sales merchants and whose earnings, as already pointed out, are necessarily added to the ultimate cost of an article. It is our aim to assist our customers in the effort to reduce the number of profits existing between raw materials and finished product. We make no more on such a sale than if we were following the old methods, but the *customer* profits, and he is therefore entitled to such an improvement in the mechanics of merchandising.

Of course, we are able to render a distinct saving to our customers by our policy of buying and selling for

cash. We often are able to secure worth-while discounts in our purchases which are passed on to the customers who in good faith pay cash to us for all purchases made. It is here that our purchasing power *on a cash basis* is of greater value, for we have safeguarded the interests of our customers by shutting out the possibility of all bad accounts and thus reducing an unnecessary overhead. In fact there is great need for the adoption of a cash policy in practically all lines of business. Such procedure is not only conservative, but it is productive of thrift and economic safety on the part of the buying public, as we have already demonstrated among our many customers.

Again, the cost of transportation is reduced to the minimum through the direction of our shipping by our Traffic Department. All our sectional consignments are delivered by through-freight, and of course at lowest possible rates. From such distributing points we then have a few short hauls to the various stores in each section. Here again, we might indifferently feel that transportation costs, whatever they amount to, are to be added to the price of the article. But when we can secure lower transportation costs, is it quite fair to the customers to fail so to do? Does not such service justify the type of distribution being rendered by the chain store?

COMPETITION WITH INDEPENDENT MERCHANT

To be sure, the foregoing facts provide keen competition for independent merchants who have a small volume of business and therefore limited buying power. But it is most interesting to note that progressive merchants everywhere welcome competition however keen it may be, so long as it is honorable and "above board." With

surprising acumen these independent operators search the markets, find values and styles peculiarly well adapted to their particular trade needs, and thus they are ever vying with us in the development of trade methods. Is not this a situation from which customers will continue to profit? The market is open—wide open, and the business of selling is reverted from shrewd misdealing to that of competitive service.

Out of such situations there are invariably secured new plans for selling on the part of both chain store and independent merchant. I believe we have as yet scarcely tapped the resources of salesmanship and service to the public. And very few superior methods will become operative except as new situations arise which *compel* men to discover these principles and put them into operation. Therefore, if the chain store system can be said to provide a keener type of competition, fairly and honorably, it is my conviction that humanity at large will profit thereby.

The question has sometimes been put to me, "Did you ever put a competitor out of business?" This tells me very plainly that prejudice still exists against multiple effort in any given direction. Let me emphasize a statement made in another portion of this article—public opinion will not long permit multiple effort to derive profit for profit's sake and without giving just compensation in return. Now I am not personally informed regarding the causes which have forced merchants out of business in towns where our stores are in operation. Anyone who knows the merchandising field readily appreciates the fact that there are many so-called merchants who do not merit success. They are alert in neither their buying nor their selling. They belong to that obsolete

group known as storekeepers. Surely it is not reasonable to assume that the law of "live and let live" should be so twisted as to apply to those who by their own choice are neither alert, systematic nor accurate in business and so are unwilling to render the high type of service now required by the public. I am frank to say that I do not consider our existence as the vital factor in the failure of such men. They, by their own inertia, put themselves out of business! The proverb that refers to time and tide is ever operative and is in reality the mechanism by which such men are left behind. There is no justification in the claim that yesterday's methods should be employed in caring for today's business. Nor can anyone expect present standards to carry over into the greater tomorrow. Even as there is without question a universal need for the very type of service which the chain store now renders, so we in turn would have no reason for complaint if we were to attempt to maintain the present type of service through future eras without change or improvement, unresponsive to the changing needs which will come, and thus find ourselves dislodged as servants of the public.

The challenge of chain store methods has come from the type of dealer who prefers not to inaugurate greater effort on his own part. The more progressive merchant has already recognized the new era of service which is expected of him and he is qualifying in a fine way. I do not believe any chain store organization can possibly defeat the best interests of an alert competing merchant anywhere. If he is really interested in his community and in his work, he will inevitably fill a niche in the town from which no honorable competition can dislodge him, for merchandising, as I have previously stated,

is being more universally founded on a mutual confidence between buyer and seller. By virtue of his personal likes and dislikes he will establish a following among his customers who are like-minded. All of which demonstrates quite clearly that the present-day merchant is but an agent of the buying public and his success depends upon his ability to anticipate their needs and to provide the kind of goods desired and on an equitable basis.

Our Company's growth has been along lines so apparently reasonable that it is not easy for me to think of any justification being required for our existence. Our present development from a single store to five hundred seventy-one stores in twenty-two years' time, attests the adoption of certain efficient methods in buying and selling to which we feel the public is entitled and which methods are certainly available to all who care to employ them. I am not prepared to say that the future will witness the adoption of the chain store idea in all lines of selling. At present, however, there is a tendency on the part of certain retailers to unite for the purpose of reducing costs of operation and for studying the factors of successful selling. It is impossible to predict the extent of this movement in future years.

A STIMULUS FOR BETTER WORK

In brief, I have attempted to outline a policy of merchandising in which our many associates have co-operated remarkably well. We have not desired profit for profit's sake. Man-power capable of executing our character-building program is our highest asset. When we have urged every manager to go into his community and become an integral part of it, we have had in mind only the sincere desire to see him carry on the life of usefulness which we feel is the natural obligation of every man

to his community. We believe that every public servant owes this to the group upon which he is dependent for his livelihood. He is our representative and co-worker there and we are solicitous that he shall safeguard the best interests of the community in which we pay our proportionate share of taxes. This type of manager is not merely an ideal—he is today a requisite part of our organization, and we shall build through future years only as we are able to recruit and train this kind of men for our managements.

It was the cherished dream of our Company's founder that he alone should not profit from the labor of his co-workers. Early in the growth of the organization he offered a partnership opportunity to the manager of each store and urged them to establish themselves in their respective communities, to build with and for the trade territory—in short, to make a permanent home there. Thus each J. C. Penney store is virtually a local institution, with the manager profiting from the reward of his own labor exactly as does any other merchant, and if satisfied so to do, he is privileged to retain his residence there for the balance of his life.

He is urged to employ local salespeople. To train them according to the principles found expedient by our Company—the supreme object being to make every J. C. Penney store not only a local institution but a home-purchasing center by virtue of the high quality of values offered and of the service rendered.

To summarize, then, we aim:

- (1) To establish selling on a strictly honorable basis, uniform in the standard of service available at every store. The Golden Rule is the only standard acceptable with us. Every customer is entitled to courteous treatment, efficient service, maximum values, and in fact every

advantage which the scientific study of our business will permit.

- (2) To maintain a community survey whereby we shall be alert to community preferences and capacities in buying. As stewards of the buying public it is our business to safeguard their interests. Thus is the overhead charge kept at a minimum figure.
- (3) To charge only a reasonable profit on each sale. Thus we give the customer the advantage of our experience in buying and selling. He repays us not only by giving us his continued and substantial patronage, but by sending additional customers to us. There is a unique satisfaction in this method of selling.
- (4) To work for the upbuilding of every community in which we are represented. We urge that our managers must prove themselves to be as worthy in citizenship as they are in business. They are in reality partners in our organization, and when we pay taxes in the community we wish to see personal effort employed to justify the investment made.
- (5) To employ local salespeople whenever possible. However, they must measure up to the high standards we have already found advisable. We pay good salaries, always equal those paid by other merchants and, in addition, a bonus is paid the women, with a possible manager-partnership as the reward for the men who qualify with us.
- (6) Constantly to seek improved methods of selling, more expert buying, to standardize all proved methods by means of educational bulletins, house organ and a training course provided for all employees. We try

to instill into every salesperson the desire not only to sell but to *serve*. We insist that he shall be more than an average clerk. That he shall carefully consider the customer's interests. To this end we endeavor constantly to improve the standards of service and to maintain it uniformly good in all stores. Our Business Training Course of seventeen lessons (free to all associates) thus produces a concerted effort in all communities where we operate.

Has the system justified itself? I have a vision of tens of thousands of customers from city and countryside who needed and merited the returns of greater accuracy in buying and a finer conscience in selling. To establish a greater confidence within them, and at the same time to render their limited purchasing power procreative of additional comforts and better values is the plain duty of present-day merchants, and they who respond are bound to derive lasting satisfaction in the knowledge of such service rendered.

To the extent that chain stores have served to whet the willingness of their own managers and of competitors to be of greater service to their customers, to the extent that they have evolved improved methods of distribution and, in the process, have shown a willingness to live and let live, the justification of their existence in the plan of distribution stands on its own merits already approved by the customers who have profited thereby.

How Co-operation Works in the Grocery Business

By HERBERT W. HESS

Written from information secured from C. M. Wessels, President of the C. M. Wessels Company,
Experts on the Distribution of Food Products

THE significant factor of large business is its capacity to organize in relation to changing times and conditions. Department stores and the chain system are succeeding because they use both capital and intelligence to bring customers into their stores. They continue to exist and to expand because of the character of the service they render, the quality of the goods, or on account of prices which people believe to be low. The secret of growth, then, is the capacity to so organize as to take care of constantly increasing consumer demand.

The present system of selling groceries is mainly through the small retailer. The majority are not merchants in the sense of being successful merchandisers or progressive executives. Most of them live up to the manufacturer's salesman's argument that a demand has been created through national advertising so that consumer purchase is upon request rather than through salesmanship. Moreover, the average retail clerk is expected to perform so many duties that he frequently loses interest in prospective customers, or he has become so well acquainted with the purchasing habits of his customer that he is a mere automaton handing over the goods asked for.

The manufacturer has been true to the principle of larger organization by advertising his product nationally. In doing so he has hoped to reach the largest number of people in the most effective way at the lowest cost.

It was with the conviction that the grocers of the state of Pennsylvania

were not a well-organized part of the manufacturer's plan for efficient and maximum distribution that the "Co-operators" were organized. It was recognized that the average grocer is not capable of being an executive, an advertising man and a salesman at one time. At present the "Cooperators" consists of one hundred grocers whose stores are situated in the best residential sections of Philadelphia, Camden, and suburbs.

All merchants' associations are made up of competitors which makes ideal co-operation impossible. The "Co-operators" are non-competitive, each store being widely separated from the other. Between them they sell over \$5,000,000 worth of goods a year.

The significant results of this kind of co-operation are many. First, there are the educational advantages. Members of this organization have their own clubrooms. Meetings are held regularly on the second Tuesdays of each month, because of the necessity as well as the importance of utilizing the intelligence of the grocer himself as a part of the manufacturer's selling organization.

This plan also appreciates the fact that it is only through the retailer that the manufacturer comes in actual contact with the consumer; it is through the retailer that the manufacturer collects his money. Moreover, grocers are not independent—they are dependent upon the manufacturer. The average individual grocer lacks the discipline and insight which co-operative organization develops. In their meetings the "Cooperators" trade

information regarding their successes as well as their failures.

As the members are non-competitive, they discuss their individual affairs freely. Should it transpire that manufacturers are shown to vary in price on the same article, this fact comes out with the result that the minimum price is quoted to all the next day.

The manufacturers whose goods the "Cooperators" are handling are invited to come before them to discuss the merits of the goods in question. This enables each member to talk more intelligently to the consumer. Sales have perceptibly increased as a result.

One of the features of this organization is that it has power of supervision over its members. If a grocer does not live up to the conditions of the agreement, a competitor takes his place. Further, this movement is entirely constructive in its effort to get at more efficient methods of distribution. When evidence of a lack of co-operation upon the part of any retailer is shown, he is called to account. If he shows hesitancy to live up to his agreement, his resignation is asked.

Window dressing is recognized as one of the most valuable advertising mediums in connection with the grocery business. The average small grocer lacks the ability as well as the time to do this well. He lacks the equipment and the talent to present his goods in the most attractive and business producing manner. Moreover, most retailers lack a knowledge of the principles which make advertising display appealing. The window of each "Cooperator" is studied in relation to maximum attention value as to space, lighting, and color. Expert window dressers are a part of the working staff of the "Cooperators." Equipped with automobiles they go from store to store, maintaining displays in each store clean and in keeping with the season.

Competent professional sign writers are constantly at work bringing dead stock to life through these silent salesmen.

The consumer point of view is not neglected. A weekly newspaper is delivered regularly to the customers of the "Cooperators." This paper contains Household Hints, Recipes, etc.

An information bureau sends bulletins to the "Cooperators," giving them information on food conservation, keeping them informed on market conditions, prices, etc. Where this information requires immediate dissemination, the telephone is used.

SERVICE DEPARTMENT

An efficiency man is maintained whose duty it is to show the "Cooperators" how to price their goods, how to estimate profit and how to arrange their stores in keeping with proper advertising and display principles.

If a "Cooperator" breaks down with a load of goods from the wharf to his store, the Service Department is quick to respond with the necessary equipment. The Service Department buys tickets and materials often in 100,000 lots at a saving of from 50 per cent to as high as 75 per cent. The files of this department give information covering fixture and equipment or stock that any "Cooperator" has to sell. It likewise contains the names of "Cooperators" who wish to purchase.

EXCHANGE BUREAU

At frequent intervals each "Cooperator" mails to the office a list of goods which he has found slow sellers or unsalable in his neighborhood. Complete information about quantity, condition, and price of these goods is in turn sent to all "Cooperators." The result is an immediate exchange of goods which are unsalable in one ter-

ritory to a territory where they are likely to sell quickly. "Cooperators" are not permitted to carry dead stock. They have been taught to increase their profits by increasing their turnovers.

The economic consequences of this kind of service to the retailer are threefold: first, it permits him to render greater satisfaction to the consumer; second, it teaches him to be analytical in his own buying; third, it creates a better store atmosphere where goods are fresh and timely.

THE ORGANIZATION OF RETAIL CLERKS

Manufacturers are beginning to realize that, whereas tremendous amounts of money are being spent to advertise their various brands, comparatively little effort is being made to educate that large body of people who actually contact the customer and who finally make the sale. Moreover, a realization of the average clerk's inability to appreciate the important place he holds in the present chain of distribution makes him an order taker instead of a salesman. So it is beginning to be recognized that much effective advertising is discounted because the clerk has not been trained to appreciate the merits of the goods he handles nor his own ultimate place in the scheme of distribution.

The "Cooperators" quickly agreed that the importance of enlisting the interest of their clerks could be accomplished through an organization. It was found advisable to establish incentives to get them together at their meetings. Prizes were given each month for attendance.

At these meetings instruction is given in methods of selling. Goods are analyzed to afford talking points. An additional incentive is added by means of prizes given each month for

the sale of goods entered in the "Cooperator" plan.

The effect of social contact and instruction analytically presented has been to raise the morale of the clerk and at the same time instil into his mind his relative importance to the grocery business. For the first time most of them began to have respect for their own business. The increase in turnover has been marked.

The "Cooperators" are controlled in their organization through a president who, in this instance, is the organizer himself. There is a contractual relationship which binds the group in its effort to co-operate with the president for mutual profit. The agreement signed by the various members indicates the economic philosophy back of the organization. Terms for membership are as follows:

1. I agree in every reasonable, possible way to promote the interests of all the members of the "Cooperators," and they in turn all agree to promote mine. I am glad to agree to do this, because it means that I shall have 100 non-competitive merchants trying to help me in return for the help I individually give them.

2. I agree, whenever I receive any information from any source which helps or is likely in the future to help my business, to send particulars to the "Cooperators" Headquarters, in order that the information may be disseminated to the other members of the organization. The other members in turn agree to do exactly the same thing. I am glad to agree to do this, because again I am getting the assistance of 100 people in return for whatever help I am able to give them.

3. I agree to receive the representatives of the manufacturers identified with the "Cooperators" *courteously*, and in case I do not carry their goods, to give them an order - the size of the order to be dependent entirely on my judgment. I do this with the distinct understanding that any goods which I purchase to cover the condition of this clause in this agreement will be taken off

my hands by the "Cooperators" at the full purchase price, plus 6 per cent on my investment, at any time I may make the request.

4. As the regular and continuous publication of a newspaper is the most important feature of this organization, in that the money to pay for the service rendered the merchants must come from the advertising it carries, I agree to supply copy regularly for each issue and to distribute—not throw on porches or in yards or at front doors—but put into the hands of my customers and prospective customers, at least 500 copies of each issue. It is further understood that the maximum number of copies to which I am entitled is to be left to the judgment of the "Cooperators."

I agree to have my copy for the back page of this newspaper—"The 'Cooperator'"—in the hands of the "Cooperators" not later than Monday morning preceding date of issue, at 9 o'clock, it being understood that I am to be furnished with a blank page proof sheet for this purpose. I further agree to pay \$1.00 per hour for every hour I am late in getting my copy in. This condition is incorporated in this agreement because this is the sum the printers charge the "Cooperators" when their work is held up through copy being late.

5. I agree to attend the meetings of the "Cooperators" on the second Tuesday of each month unless prevented by sickness, death or other unavoidable reason, realizing that the success of this movement is very largely dependent upon the regular and constant personal association between those interested.

6. I agree, wherever I have an unsatisfactory experience with a "representative" of any of the Manufacturer Co-operators, to promptly give full particulars to the Secretary of the "Cooperators." The object of this condition is to protect the Merchant "Cooperators" against anything objectionable upon the part of a Manufacturer "Cooperator."

7. I agree to make space for any of the Manufacturer "Cooperators'" products in one of my windows whenever requested to do so, it being understood that any competitive goods I may handle will NOT be displayed in my windows.

8. I hereby give the Secretary of the "Co-

operators" the right to censor the copy I prepare for the newspaper to the extent that he is authorized to eliminate anything which appears in my copy which is calculated to work against the interests of the organization.

I agree to the conditions stipulated above with the following understanding, that the "Cooperators" agree:

1. To maintain a thoroughly equipped Office and Office Force, a Clubroom with the necessary equipment and help for the benefit of the "Cooperators"—at no expense to me.

2. To supply me with a professional Window Dresser at any time I may require his services, and give sufficient notice to enable him to so arrange his time as to keep his engagement with me—at no expense to me.

3. To supply me with a Newspaper which is to carry my advertising on the back page, every other week, and as soon as the organization is financially able to do so, every week—at no expense to me.

4. The "Cooperators" agree to help me in any way that lies in their power in the preparation of any form of advertising, circular work, letters or anything of a similar character, which I may wish to do—at no expense to me.

5. The "Cooperators" agree to furnish me with Cardboard Signs of any description which I may require for my business in any reasonable number. This doesn't mean signs only for the goods of the Manufacturer "Cooperators," but also such signs as, "This store will be closed on Wednesday afternoons," or signs to exploit any goods I may handle which do not compete with any Manufacturer "Cooperators'" products—at no expense to me.

6. The "Cooperators" agree that any information which comes to them from any source which they believe will prove interesting or beneficial to me will be forwarded to me by telephone, or mail—at no expense to me.

WHAT THIS MEANS TO THE MANUFACTURER

If a manufacturer wishes to take advantage of the "Cooperators," he is recognized as a "Cooperating Manu-

facturer." He must, however, adhere to certain stipulations. He is asked to pay one dollar a week per store or one hundred dollars for one hundred stores. If he wishes his sales and displays to be handled by the "Cooperators" he is charged two hundred dollars a month. In return, the manufacturer gets:

First, the consent of one hundred grocers to place his goods on their shelves.

Second, goods will be put in the windows without competitor's goods.

Third, the "Cooperators" will insert an advertisement for the manufacturer. Not only will he advertise in their papers and will not run competitive advertisements, but he will guarantee their quality and agree to refund the money on any article which does not give satisfaction.

Fourth, clerks of the "Cooperators" will be trained to sell these particular goods and are paid extra for so doing. Girls on the telephones are trained to mention these goods and are paid extra for so doing.

Fifth, demonstrations of the goods will be granted upon request.

The spirit of co-operation is here evidenced between manufacturer, the retailer, and the clerk. But, more significant still, for the first time in the history of salesmanship, the salesman finds himself welcome in the store of every "Cooperator."

THE FAR-REACHING EFFECT OF CO-OPERATION FOR THE MANUFACTURER

The influence of the "Cooperators" is not confined to their own selling ability. The newspaper is sent not only to their own customers but also to their competitor's customers. The result is that the competitor's customers begin to ask for the "Cooperators" goods. To be able to fill the orders

they must do one of two things: Either buy them from a "Cooperator" and pay the retail price, or stock them. The result to the manufacturer is general demand and more general distribution.

The effect of a scientific approach to the problem of one hundred grocers has been threefold:

1. To instil the owner with a sense of social responsibility in the conduct of his business.
2. To render such expert advice and practical assistance as will enable him to keep his business at maximum efficiency.
3. To sell cleaner and better goods to the ultimate consumer.

Distribution is partly a question of leadership. Goods do not sell themselves. They are sold as a result of an educational process howsoever humble the effort might seem. Our present system of distribution is subject to criticism due to a lack of administrative leadership to inspire those struggling up from below to appreciate their possibilities for more effective selling.

The "Cooperators" simply exemplify the principle of reciprocal gain based on an appreciation of loyal group action. It is the actual growth of the individual himself which depends upon his capacity to adjust himself to the opportunities which co-operation can often effectively make possible. Wealth is thus created through co-operative leadership, and encourages as well as makes practical the economic strivings of those who would otherwise either fail or remain at a low level of efficiency. The co-operative principle has herein exemplified wealth-creative possibilities in the field of distribution for those who have the capacity to appreciate the merits of group loyalty and co-operation under wise leadership.

Foreign Trade and Increased National Wealth

By HARRY T. COLLINGS

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FOREIGN trade is, and has been, necessary to the welfare and progress of the United States. Until recent years, however, it has been the subject of comparatively little thought or interest. With exports consisting largely of foodstuffs and raw materials urgently needed by foreign nations, we knew nothing of real competition abroad. Receiving as part of the return for these exports the so-called invisible items of foreign trade—services of a merchant marine, of banks or insurance companies, services to our tourists abroad, satisfaction of interest payments on foreign loans or immigrant remittances—it was never brought home to us as a people that “imports pay for exports.”

Foreign trade, therefore, in the popular mind and even among business men came to mean exporting American products for which we received cash, often before the commodities left our shores. The importation of foreign goods was regarded as an unmitigated evil, to be confined within strictest limits since it “took our money abroad” and “robbed American laborers of their jobs.” Any gain on the part of foreigners in selling goods to us must of necessity be so much loss to the purchaser here: so ran the popular argument.

The international phase of American business, however, has recently taken on a new significance. We have come to see our need of international trade as an integral part of our fullest economic development, and the discussion of the last ten years has clarified and corrected many misleading popular

notions. This much is now clear—we have changed from a nation exporting chiefly foodstuffs and raw materials—which foreigners must have from us—to a nation needing some foodstuffs and much raw material, and exporting manufactured goods which must compete for a market. Then, too, our domestic market of over 100,000,000 people no longer absorbs all the output of our productive machinery. In the past, development of domestic business took all our attention and capital, and foreigners took our available exports; at present our internal economic development has ceased to demand all our energy or money, and we can manufacture more than we need at home. This leads inevitably to one conclusion—foreign trade is, as never before, a factor in increasing our national wealth. With this as a thesis this paper will endeavor to point out:

- (1) The importance of foreign trade to our business development.
- (2) How foreign trade increases our national wealth.
- (3) The future of foreign trade in our economic development.

U. S. DOMESTIC MARKET

The determination of the exact importance to a nation of its exchange of goods and services with other countries is by no means an easy task. Many of the advantages of international commerce are not amenable to statistical measurement. Even the determination of the exact relative proportions of our domestic and foreign business is difficult, since variations in the possible meanings of the word “business” mili-

tate against accurate generalizations. If the sum of our yearly exports and imports (in values) constitutes our foreign business, then we can easily obtain this figure. But how shall we compare this with our domestic business? Values for our imports are based (except for coal tar products) on prices abroad which are not comparable with prices in the United States until proper adjustment has been made for differences in price levels. But what is to constitute domestic business? Is it measured by the total volume of money transactions, including strictly financial transactions as well as payments for commodities and services? Or should commodities only be included? If so, does each sale and resale continue to swell the total? Are not exports first counted as part of our domestic business and imports also when finally disposed of to the ultimate consumer? The raising of these questions shows the complexity of the computation. A careful estimate (*New York Times Annalist*, Jan. 17, 1916) maintains that our foreign trade for 1915 was less than one per cent of our total trade, while another estimate (B. M. Anderson, Jr. — *The Value of Money*, pp. 267-278) concludes that our foreign trade in that same year was 16.4 per cent as large as the domestic trade. Different bases were used.

It is scarcely conceivable that we shall ever seek abroad the chief markets for our products. For decades to come our domestic market will probably demand three-quarters or more of all we can produce, at prices satisfactory to the producer. Foreign trade does not and never will have for us the importance which it has in the business life of the Netherlands, Belgium, Switzerland, Denmark, the United Kingdom, or of many of the Latin-American countries. As the following table shows, the United States stood twenty-

second in a list of countries ranked according to the per capita value of their foreign trade in a reasonably normal year (1913).

ANNUAL FOREIGN TRADE PER CAPITA

(Values in dollars for the year 1913)

	Total
1. Netherlands	\$452.98
2. Belgium	221.47
3. New Zealand	191.26
4. Switzerland	168.26
5. Australia	149.39
6. Denmark	139.82
7. Canada	137.38
8. United Kingdom	125.20
9. Cuba	120.27
10. Norway	101.58
11. Argentina	100.39
12. Uruguay	94.47
13. Union South Africa	84.44
14. Sweden	79.50
15. Chile	76.48
16. France	74.98
17. Germany	74.02
18. Dutch West Indies	63.37
19. Finland	54.16
20. Panama	49.79
21. Costa Rica	46.24
22. United States	42.60

Since such figures are obtained by totaling export and import values and dividing by the number of inhabitants in the country, it is evident that sparsely settled countries which must buy their manufactured products abroad and pay for them with exported foodstuffs or raw materials will stand high in the list. Likewise industrially advanced nations with comparatively small areas must rely upon imports of foodstuffs and raw materials and export finished commodities to maintain a high scale of living and continue their economic development. In either case the per capita value of the foreign trade will be comparatively high.

But the overwhelming importance of the domestic market in the United States by no means implies that the

foreign market is negligible. Our trade with other nations at its peak in 1920 reached nearly thirteen and one half billions of dollars and last year totaled nearly eight billions as is shown by the following table.

THE FOREIGN COMMERCE OF THE UNITED STATES

(In millions of dollars)

YEAR*	EXPORTS	IMPORTS	TOTAL
1800.....	\$71	\$91	\$162
1810.....	87	85	152
1820....	70	74	144
1830...	72	63	135
1840....	124	94	218
1850....	144	173	317
1860....	334	354	688
1870....	393	436	829
1880....	836	668	1,504
1890....	858	789	1,647
1900....	1,394	850	2,244
1910....	1,745	1,557	3,302
1920....	8,109	5,238	13,347
1921....	4,485	2,509	6,994
1922....	3,832	3,113	6,945
1923....	4,168	3,792	7,960

* (Department of Commerce.) Fiscal year up to and including 1920; from 1921 on, calendar years.

IMPORTANCE OF FOREIGN TRADE

Nor is the significance of our trading relations outside of our national boundaries indicated in its entirety by the figures above. The United States produces more iron, copper, petroleum, coal, and cotton—basic raw materials needed in modern manufacturing—than any other nation, and more than it needs for home consumption. We have an aptitude for the use of machinery, a genius for its invention, and an indefatigable energy of organization which sweeps away all barriers to accomplishment. In the production of standardized manufactured goods, in the adoption of large-scale methods—in all the factors which make for increased products, we have no peers.

How can we utilize these advantages to the full when our domestic market does not and of necessity cannot absorb at reasonable prices the total products of our potential energy? Only by consistent cultivation of the foreign market. Supposing this absorbs only 10 per cent of our total product, can we then estimate the importance of our foreign trade at that figure? It is a curious piece of business psychology which does. It is absurd to suppose that the remaining 90 per cent would continue as before, assuming the disappearance of the other 10 per cent or any considerable part of it.

The percentage of foreign trade means nothing until we can inquire into the far-reaching effects which the loss of this percentage might have upon the fundamental courses of domestic business. It is usually admitted that the difference between normal volume of business and the volume of business at the bottom of a depression is only about 20 per cent and the average reduction from normal business during the entire period of a depression may be less than 15 per cent. Variations of from 5 to 15 per cent in operating ratios in some lines of business may cover the range from reasonable profits to ruinous losses. The percentage of our products absorbed by foreign trade may be the difference between success and failure,

because a reduction in foreign demand may drastically depress prices; because unforeseen price changes may play such havoc with profits; and because the cumulative buying capacity upon which American industry prospers depends in its initiation, and for its maintenance, so much upon the profitable sale of products whose prices are determined in international markets; our interest in foreign trade and in foreign economic conditions exceeds by far the relative importance suggested by the 10 or 15 per cent which our foreign trade bears to our total trade.

PATH TO INCREASED WEALTH

We may now turn to the more fundamental inquiry: How does foreign commerce increase our national wealth? To answer this from the practices of all too many exporters would be to say that it serves as a means of disposing of our surplus products "whenever there is a surplus." Unfortunately for us it has served just such a purpose all too often. This is simply to regard sales abroad as a temporary refuge to be sought only in times of domestic storm. To look upon the foreign market as an outlet only when in an emergency the domestic market does not suffice, is to fail to understand the fundamental law of trade. Foreign trade is not and never can be established on a firm basis for any nation until it becomes a permanent policy, and an exchange of goods in which both the buyer and seller profit. Bargain counter sales jeopardize domestic business; they ruin international business. International commerce is a long-term proposition. To sell abroad only for the nonce is to invite dissatisfaction and criticism.

The benefit to be derived from foreign trade is found in imports and not in exports. That this is true for the people as a whole is patent; that it is also true for the individual trader in the long run is not so evident. The individual producer is interested in selling for profit—the largest quantity of goods at the highest prices. Sales in foreign lands further his aim. But the people as a whole are interested in neither exporting nor importing *per se*, but only in getting the largest quantity of want-satisfying goods of the best quality, for the least amount of effort. Reduction of the units of labor required to obtain consumption goods is the essence of economic progress. Would he succeed, the individual ex-

porter must act in accordance with this principle. His exports he can sell only (1) for cash, (2) on credit, or (3) for other goods (imports). But for all the exporters of a country to receive cash from a foreign country over a long period of time is manifestly impossible. The importing countries would soon be drained of the money (gold), and prices would fall, while the exporting country with the continuous influx of gold would experience a rise of prices. These phenomena would of themselves reverse the foreign trading relations—making the country of the former exporter a place to sell goods to advantage, and that of the former importer an excellent mart in which to buy.

If, then, the exporter cannot continue to demand cash (gold), what shall we say of credit? Simply this, that credit is not payment at all—it is merely postponing of payment. Credit no more pays for goods than does a public loan eliminate taxes. It only puts off the evil day. The only way, then, in which exporters can receive pay for their wares over any long period of time is through imports. International trade is essentially barter. The increase, then, in our national wealth must come through getting more or better goods by exchange with other countries than if we attempted to make all goods for ourselves. We concentrate on certain commodities in which we have a comparative advantage, and exporting our surplus we thereby get in return a larger amount or a better quality of another goods for a given expenditure of energy than if we had endeavored to supply our needs in both articles. Thus do we profit by foreign trade and increase our national wealth. This says nothing more than that by specializing on certain products and sending abroad the quantities not needed at home, a nation gets more per unit of labor than by attempting to

satisfy all its own needs. Surely this is the principle of modern business. South Dakota grows wheat and trades the grain not needed at home for the shoes of Massachusetts; Florida grows oranges and exchanges the surplus for Pennsylvania textiles. To what end is this exchange? Solely that each community may receive more for its labor than if each community were self-sufficient.

IMPORTS MUST EXCEED EXPORTS

Many advantages accrue to a nation from its trade exchanges with other national groups, but all connect themselves with the advancement of national welfare through importation. Deprived of imported commodities, we must needs modify our entire standard of living. Coffee, sugar, rubber, bananas, tobacco, hides, wool, silk, tin, crude petroleum, and news print paper are basic in our welfare, and yet they are either exotic or are produced here in too small a quantity to satisfy the domestic demand. Goods which enjoy a world market have a stability of demand and consequently of price greater than that of goods produced solely for local sale. The larger market, too, confers the advantages of large-scale production. Thirty thousand manufacturers in the United States paid less for their raw material in 1923 because of the volume of their export trade. But unless the labor spent in the large production at home means the obtaining of more or better satisfactions in the imported goods, it were better spent in other productive enterprises. Foreign trade permits international borrowing. Young countries may build up their railroads and industries with borrowed money largely because it permits them to import with payment postponed. The payment of interest and the repayment of the principal must take the form of exported

goods or services. Our present financial relations with Europe have a special bearing on the point under consideration. Previous to the Great War we were a debtor nation to the extent of some \$6,500,000,000. If our holdings abroad amounted to \$1,500,000,000 we owed \$5,000,000,000. This meant an annual interest payment of \$250,000,000. We are now a creditor nation by over \$13,000,000,000. Much of this will never be repaid. But any payments of interest or repayments of principal can materialize only as we accept imports of goods or services in excess of our own shipments abroad.

Not all national wealth is economic; culture contributes its share. There is what one has termed the "moral by-products" of international trade. The trader is often the first missionary to a foreign land. He comes to know its civilization, and interprets it in his native country. Thus he breaks down the bars of provincialism and leads his fellow-countrymen to a larger life.

ABNORMAL SITUATION FROM WAR

But what of the future? In consequence of the great drop in prices during 1921, and of the present political and financial disorganization in Europe, there have not been wanting those who advocated the abandonment of our foreign trade promotion and the concentration of our attention on fuller development of domestic possibilities. Fired with the excitement of those hectic years from 1914 to 1920, American business built up without effort sales accounts in war-stricken Europe, and sales machinery here, which has no justification in a sane world. This feverish activity was as abnormal as the war itself. The demand of Europe for our goods during those years was the result of a cataclysm which threatened to engulf the world. The diagram

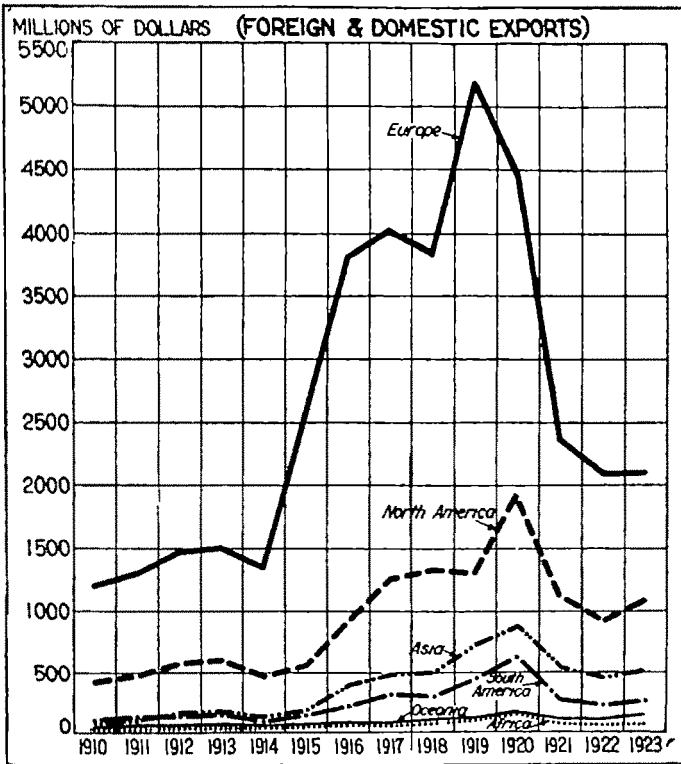
given below presents graphically this abnormal development.

NEED FOR EXPANSION

Viewing this picture should we reason that we have lost our cunning in making and disposing of our wares?

deceptive. To judge business at any time by figures alone is misleading; to compare 1921 with 1920 without correction for price changes would be little short of stupidity. Transferring to the pound unit each article of import or export in which the value (in 1921) was

GEOGRAPHIC DISTRIBUTION OF THE EXPORTS OF THE UNITED STATES
(Department of Commerce)



By no means. To be sure, our total foreign trade fell from the towering height of over thirteen billions in 1920 to somewhat less than eight billion dollars in 1921. But even when we take into account price changes, the eight billion of 1921 compares favorably with the trade of 1913, amounting to slightly over four billion, or with that of 1914, which was somewhat less. Figures may not lie, but they can be winsomely

above one million dollars, for which quantities imported or exported are officially recorded by the Department of Commerce, it appears that our import and export of these commodities fell from approximately 250,000,000,000 pounds in 1920 to approximately 200,000,000,000 in 1921, or a drop of 20 per cent. Comparison of values for the merchandise would show a drop of 49 per cent.

Is the future then so dark? Yes—for the unskilled tyro who wants something for nothing, who demands skilled wages for unskilled labor as an exporter, who wants war-time profits with no assumption of business risk. The firm of Ketchum & Skinner is “on the rocks.” But the message for the prudent, for him who will give service for value received, has no such tone. Foreign trade is of most benefit to countries which are in the early or the late stages of industrial development. We have now reached the latter period. Effort only is needed to establish on a sound business basis our dealings with Europe and the Orient, and to find new customers among our neighbors to the North or in Latin America. At the

Eleventh National Foreign Trade Convention held in Boston last June, the note was one of optimism. As James A. Farrell, President of the United States Steel Corporation, said in opening the convention:

We are not to retire from foreign trade because Europe is not able to continue her accustomed rate of buying and selling. As our requirements in raw materials increase, while Europe’s ability to produce them diminishes or fails to keep pace with our growing demand, it is the course of ordinary prudence on our part to expand our activity in seeking such materials in other markets of supply. This is a very important factor of our situation today.

More than ever before the increase of our national wealth is indissolubly linked with the development of our foreign trade.

Bibliography

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NO attempt has been made to subdivide the following bibliography into a detailed classification. The books listed under Merchandising consist of material which has to do with the broad field of marketing and selling administration. They consider the problems of the agriculturalist, manufacturer, wholesaler, and retailer. The Advertising bibliography not only covers the general field of advertising, but includes books dealing with the more specialized phases, such as mail communication, retail advertising, export advertising, and window and store display. The list of books in Salesmanship deals with the general psychological factors necessary in selling and also the problems of selling at retail and wholesale. In addition, material dealing with the training and control of salesmen, commonly known as salesmanagement, is included.

While the bibliography in the fields of merchandising, advertising and salesmanship is quite extensive, it will be noted that most of the books are of recent date. Much fragmentary material was published on these subjects prior to the last decade, but this period has witnessed the publication of extensive and specialized material by those who may be considered as pioneers in their several fields. This indicates that the subjects are only beginning to receive the attention their importance deserves and a fine opportunity is still afforded to add to the present literature. To those who can revise this material and make additional contributions, based upon the newer developments, even greater credit will accrue. The need of the future in the literature

of the fields requires that greater consideration be given to basic fundamental concepts which have been developed in both the natural and social sciences. The truths of the earth—sciences, biology, psychology, and economics—should all be drawn upon to build up a more scientific classification and approach to the subject. The fault of much of the present literature lies in the fact that it is too factual and descriptive of past successes and failures rather than dealing in basic considerations. If the future contributors to this particular phase of business administration would endeavor to seek the truths as revealed by the older divisions of learning, it is more than likely that the merchandising, advertising and salesmanship literature will abandon much of the rule of thumb practice now existent and lead to principles based upon fundamental factors.

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Book Department

MANGOLD, GEORGE B. *Problems of Child Welfare*. Revised edition. Pp. xviii, 602. Price, \$3.00. New York City: The Macmillan Company, 1924.

MATEER, FLORENCE. *The Unstable Child*. Pp. xii, 471. Price, \$2.75. New York City: D. Appleton and Company, 1924.

JOINT COMMITTEE ON METHODS OF PREVENTING DELINQUENCY. *Three Problem Children*. Pp. 146. New York City: The Commonwealth Fund.

Ten years ago, when the first edition of Mangold's book appeared, child welfare was just coming to be recognized as a distinctive field of study and social effort. *Problems of Child Welfare*, an enlargement of the author's briefer manual on *Child Problems*, was the first book to cover the subject in a comprehensive manner, and it quickly became the standard book in the field.

In the decade that has elapsed, much new information has been gathered, and a number of significant developments in the program for child welfare have taken place. In this revision, then, the author sets himself a dual task: first, that of revising statistical tables, of adding new facts and current illustrations; and, second, of describing and evaluating the new social machinery that has come into existence. Among the latter are such developments as vocational guidance, the visiting teacher movement, the Federal Maternity and Infancy Law, Mothers' Pensions, and the Children's Code.

It is the reviewer's conviction that a chapter on factors in modern life affecting the family, with special reference to their bearing upon child problems, ought to be included in any book that aims to cover the subject of child welfare. More emphasis might have been given, in the revision, to problems of malnutrition and the pre-school years. The chapter on Mental Classification remains in the revised, as it was in the original, edition, the least satisfactory part of the volume. The contributions of psychiatry to child wel-

fare are given rather scant recognition. In view of our recent understanding and emphasis of these matters, this is all the more apparent. A chapter interpreting the child welfare movement, and relating it to the entire social betterment program, might also have been desirable.

Despite these omissions, some of which are to be explained no doubt by the exigencies of book making, this volume is the best introduction to the general field of child welfare that has yet appeared.

Over against this comprehensive résumé, the reader will find in Dr. Mateer's book a specialist's discussion of a particular group of children—not mentally inferior, not insane, not seemingly handicapped, but who yet make continued demand on school and home and community.

Someone has said that short courses in psychology ought to rank high in an abridged list of the world's evils. Certainly there can be no doubt of the many exploiters and quacks who are participating in the present day "psychology masquerade." One is particularly impressed by this fact after reading the first part of this book, with its clear-cut discussion of clinical psychology—its origin, tendencies, problems, means, methods, verifications of results and illustrative cases. While not agreeing with all specific statements (being a mere man, the reviewer cannot accede to the contention, page 70, "that women are far more apt to make good clinical psychologists"), two important facts are brought out very well in this first part of the volume. One of these is the necessity, and the difficulty, of a careful, detailed, intimate, and scientific psychological examination of the client. The other fact is that clinical psychologists have reached that point of critical dissatisfaction with their work which means that they are ready for the consideration of new aspects of their problems.

The author's chief dissatisfaction with the work of many members of her own guild is the importance given to intelligence

ratings. The study of the intelligence level is important, she avers, but it is not enough to know how far an individual mind has gone in its development. One must learn also how that mind works. Our final psychological estimate of an individual's ability is a summing up of how well he uses the mental equipment he has. Quality rather than quantity is the puzzling factor in studying problem children. Psychopathy is the term used to indicate bad functioning. This is not a new concept, of course. What Dr. Mateer contends, however, is newer: that this malfunctioning can be studied in the psychological laboratory; that these instabilities are almost as readily determined as intelligence level; that clinical psychology is ready for such research, and is more able to handle them than psychiatry.

The second part of the book is a study of the psychopathic delinquent, summarizing Dr. Mateer's work while at the Ohio Bureau of Juvenile Research. During her two years there, 869 boys and girls were studied psychologically under her direct supervision. Special consideration is given in the book to one group among these—the congenitally syphilitic. Ninety-nine of these children were thus diagnosed. The author had the conviction forced upon her that they constitute a rather definite type; that those of similar mental ages failed on the same tests. "There is no doubt but that one with a knowledge of the congenital syphilitic as a mental problem can recognize such cases through their behavior on standardized tests." Persons familiar with case records of problem children cannot but be impressed with the proportion of cases in which congenital syphilis is a feature of the physical diagnosis. Such persons will be intrigued by the author's contentions.

Whether it is to be the clinical psychologist or the psychiatrist, certain is it that the common element in their work is giving us a new approach to the handling of child problems. As Dr. Thomas Salmon has pointed out, the psychiatrist who has been in contact with social work, and the social worker who has been in contact with psy-

chiatry, each does his work better than do the psychiatrist and social worker who have not had the advantage of such contacts. *Three Problem Children*, comprising narratives from the case records of a child guidance clinic, illustrates the methods of study, guidance, and help that are being evolved to help problem children from this newer angle.

The three cases presented are well selected. One is the story of a child of normal intelligence, but retarded in school, unhappy, and threatened with possible mental disease. The second is of superior intelligence, but failing in school, misbehaving, and unhappy. The third is of inferior mentality, a school failure, and apparently at the beginning of a delinquent career.

The cases are well presented. Extraneous details are omitted. The really pertinent facts of diagnosis and treatment are told in the fewest and simplest words possible, showing in each case the individuality of the problem, its development in accordance with the principle of causation, and the necessity for treatment by the coordinated resources which an organized clinical group commands. Appended to these cases is a brief discussion by Dr. Morrison, Professor of Education at the University of Chicago, and the Commonwealth Fund Program for the prevention of delinquency.

These three books constitute an excellent trilogy. One deals with the general aspects of child problems, the second with the problems and methods of study of a specialized group, the third with the technical handling of individual cases. All three are well written and will repay careful perusal.

JAMES H. S. BOSSARD.

HENRY GEORGE'S PROGRESS AND POVERTY.

An abridgement authorized by Anna George de Mille. Pp. 214. Price, \$1.00. New York: Harcourt, Brace & Company, 1924.

The time is propitious for the publication in condensed form of this distinctive social document. In the present compact and readable volume some 200 pages carry

the message formerly set forth in more than 500. This condensation has been done with discretion, intelligence, and sympathy.

As an economic treatise *Progress and Poverty* spans easily the gap of forty-five years, with its luminous exposition, its frank and persuasive argument, and its gift of ready illustration in terms both homely and picturesque.

The publication of the original edition in 1879 was the occasion of an epidemic of explosive criticism in the columns of conservative journals, which compelled all serious social students to seek to understand the significance of its provocative gospel. It appeared at a time when the quickening rhythm of pulsing industrialism, —whose pattern of feverish prosperity, crashing panic and vicarious social misery, —was arousing widespread apprehension and discussion. George's brilliantly argued proposal "To abolish all taxation, save that upon land values" embodied both a precious promise and a profoundly disturbing challenge.

The import of his book was more readily comprehended in the British Isles than in the United States, inasmuch as the political instinct and training of a compact population schooled in the lessons of feudalism had there prepared the ground for the new doctrine. In *The Fabian Essays In Socialism* G. Bernard Shaw refers to the "Numbers of young men, pupils of Mill, Spencer, Comte and Darwin, roused by Mr. Henry George's *Progress and Poverty* in the Eighteen Eighties." And the echoes of the discussion carried across the oceans to Melbourne and Sydney, to Auckland and Wellington, where the new ideas were to bear fruit in due course. In his article Shaw said further,

The phenomenon of economic rent has assumed prodigious proportions in our great cities. The injustice of its private appropriation is glaring, flagrant, almost ridiculous.

In the fantastic reflection of current American politics, and of chaotic international diplomacy, it is equally observable that the same principle of private appropriation applied to oil, coal, iron ore, and other essential values in the land is nowise

less glaring, flagrant and grotesquely ridiculous than when Shaw offered his trenchant comment.

The recapture of economic rent for public revenue through a legal and orderly process of taxation was the central idea of the Georgian proposal from the fiscal standpoint. The intended social effect was the disemboweling of land monopoly, in the belief that the margin of opportunity created thereby would provide well-nigh unlimited frontiers of production to the oncoming generations of actual users and occupiers of the land. This social theory rested upon the succinct Jeffersonian doctrine that "The land belongs in usufruct to the living." Echoes of George's social purposes may be heard today in Senator La Follette's campaign pronouncement (of July 4, 1924) which has for its keynote the following challenge:

To break the combine power of the private monopoly system over the political and economic life of the American people is the one paramount issue of the 1924 campaign . . . The supreme issue, involving all others, is the encroachment of the powerful few upon the rights of the many.

Whatever else *Progress and Poverty* may or may not have accomplished, it undoubtedly presented the evidence and provided the argument which demonstrated to a multitude of readers that land monopoly is the fundamental method of levying tribute from them asses; that its laws of operation are universal; and that its application is rarely tempered by mercy.

Deeper than logic or intellect there lay a power in George's appeal; for he presented what was, in effect, not merely a fiscal, political or social program, but an essential philosophy of life. It was a social evangel, vibrant with a religious fervor that was not afraid to rest its case upon the ideal of the brotherhood of man and the fatherhood of God. An ideal perchance of insufficient complexity to satisfy the intensely evolving concepts of the new century, but sufficient to touch the heart of the common man of George's generation, and to incense the Tory mind which resented any assumption that God was to be found, forsooth, on the side of the less

heavily equipped battalions. How rapidly the weight is shifting today from the old battalions to the new, let Ramsay MacDonald's occupancy of a foremost chair among the seats of the mighty bear eloquent witness. Other symbols of change, intense and dramatic, are equally visible to him who would face frankly the realities of the new day. It is in the light of these changes, which were broadly sensed, and in part directly influenced, by the "Prophet of San Francisco" almost half a century ago, that the newly published volume of *Progress and Poverty* should be read, considered, and inwardly digested.

Fashions in literature change with changing times; but books which are touched with inspiration and inward illumination live in a gracious glow like saints and heroes crowned in pictured radiance. Through unselfish devotion to truth, and to the spirit, they serve to lift mankind to levels of wider knowledge and deeper understanding of life; and in good time they take their appointed place among the active and liberating forces of human enlightenment.

WILLIAM LLOYD GARRISON.

CALDER, JOHN. *Capital's Duty to the Wage-Earner*. A Manual of Principles and Practice on Handling the Human Factors in Industry. Pp. 326. Price, \$2.25. New York: Longmans, Green and Company, 1923.

This is a book written by a practical engineer for practical men called upon to handle labor in industry. Though written specifically for the employer and labor manager, it deals not only with "capital's duty to the wage-earner," but just as much with the wage-earner's duty to capital. It is truly "a manual of principles" as well as of "practice," for considerable attention is given to an analysis of the labor movement as it is and to some extent to the causes (at least the psychological) that make it what it is. The author reveals a much stronger grasp of the economics and the philosophy of the labor movement than is common among the fraternity of engineers, but the pragmatic character of the book leads him to slight

the causal side of the problem in his anxiety to get at the facts and effects.

The problem to which the book is dedicated is formulated in the following language:

How can our organization for the production of wealth be so improved that the general welfare in its broadest material and moral implications will be progressively advanced?

How are individual men and women—both without and with capital—to be taught to labor with their hands and brains willingly and efficiently so as to secure out of the products of their toil and thought what they feel to be, and what will be in fact, a fair return? (Page 6.)

The road to this goal, in the author's view, runs neither through the trade union nor through the employers' associations organized to fight labor. He is equally emphatic in his condemnation of the closed union shop and of the so-called "open shop," which is usually closed to union people (pp. 63-69). The typical labor leader, in the author's opinion, is more concerned with the problem of controlling his rank and file than with the constructive problems of industry. He is totally ignorant of the problems within the plant, yet he tries to exercise control over the industrial relations there. The author calls him, therefore, an "absentee" leader. Mr. Calder thinks that:

The day of absentee control of labor by national or international unions on a basis of class-conscious struggle, has been tried and found wanting. Such organization has led to abuses greater than the benefits it brought, and the public will not much longer support it. For the distant boss and his walking delegate, whose job demands aggression and militant poses regardless of the merits of a particular issue, there will in time be substituted the leader who has a knowledge of, and a stake in the community in which he lives (page 153).

By the latter type of local leader, the author means the leader of the workers employed in a given plant, a leader of what has come to be known as "a company union."

The author's solution of the labor problem lies in an employees' representation plan under which the workers of a plant are represented in an assembly composed

of an equal number of representatives of the workers and of the management. Any difference or dispute which cannot be settled by standing committees composed of representatives of both sides, or by the assembly as a whole, leaves either side "free to take such action outside of the plan and its rules as they may think advisable."

It is this feature which does not prevent an employe from belonging to a union if he chooses to do so and which makes the plant truly an "open shop," which Mr. Calder emphasizes as an important essential of his plan, which he claims has been in successful operation in the packing plants of Swift & Company employing about 24,000 people (page 165).

His own testimony, however, tends to show that the effort to carry on industrial relations under a dual, rival control of a trade union and a company union is fraught with danger and bound to lead to conflict between the two leaderships.

The essential features of his plan which no doubt impart to it the character of the most liberally conceived and fair plan of industrial representation under employers' auspices yet devised, are:

1. Unlimited freedom of "discussion regarding every employe interest . . . and definite powers of decision."

2. Joint representation is necessary if there is to be a mutual and beneficial educative effect upon employes and management. Both need it and the day of two hostile camps sporting an occasional flag of truce should be left behind.

3. Any plan of representation within a plant which, as a condition of its existence, excludes organized men from employment or forbids or inhibits directly or indirectly, the free expression of opinion by such employes, or by any dissentients—whether majorities or minorities, will fail to attain success.

4. No plan of employes' representation will command the confidence of either organized or unorganized employes, if it is essentially or chiefly a union-fighting or union-destroying instrument. The sincere employer will find that a genuine democratic assembly is a far more enlightening and educative body than the average union of today which has little interest in the truth about any one plant situation and is chiefly "gunning" for national spoils. He will also find that any injustice or repression will only saddle him in the end with an external fight

for which he has himself furnished the ammunition and greater intelligence for securing his defeat than would otherwise be available. Moral—let the insincere employer avoid employes' representation as he would the plague (pages 175-176).

Lack of space precludes an analysis of the author's discussion of such fundamentals as capital, labor, wages, working hours, profit sharing, unemployment, immigration and social justice. It bears the imprint of refreshing candor and freedom from cant.

The work is unique. Although revealing a broad knowledge of economics and close acquaintance with the philosophy as well as the practise of the labor movement both in this country and in England, Mr. Calder's book is intensely practical and deals with the intimate troubles and daily problems of industry such as only a practical industrial manager can discern. It is not necessary to agree with most of the author's conclusions to be well repaid by a perusal of his contribution to the literature on industrial relations.

N. I. STONE.

LOWELL, ABBOTT LAWRENCE. *Public Opinion in War and Peace*. Pp. 302. Price, \$2.50. Harvard University Press, 1924.

President Lowell writes of public opinion as a lawyer and a student of politics. That means that he writes in the language of philosophy rather than in that of psychology.

Not that he is unfamiliar with the recent literature in the field of collective psychology, since he makes repeated references to it, and particularly to William McDougal's *Group Mind*. But he has done his thinking in another universe of discourse, and he prefers to talk of public opinion in terms of common sense rather than in the technical language of a somewhat dubious social psychology.

For common sense, public opinion is a matter of elections and majorities, and of the machinery by which majorities are rolled up and recorded. It is with public opinion as determined by the contests of parties, and the limitations of political

machinery that this volume is chiefly concerned. The result is a book of shrewd observation upon the practical workings of political parties in America, in England, and on the Continent, including the disturbances and the distortions of the different party systems under the influence of the excitement of a world war.

Some of President Lowell's definitions indicate his point of view. "An opinion," he says, "may be defined as the acceptance of one among two or more inconsistent views which are capable of being accepted by a national mind."

Numerous references throughout the volume indicate, however, that opinion is not always the result of so rational a process as this definition suggests. "A change of opinion," he writes, "usually takes place by directing attention into a new channel, which has the effect of drawing a red herring across the trail" and Mr. Lowell quotes with approval Lecky's remark that "people do not disprove miracles, they outgrow them."

Other references recognize the fact that public opinion, as registered in the contests of political parties, is not always either consistent or rational. Opinions change by a process of exceptions to general rules. Finally the rule becomes the exception. "An exceptional case, especially if it touches an emotion," as Mr. Lowell remarks, "often appeals with peculiar force even to people who are strongly in favor of maintaining a general principle."

Almost anything that "appeals with peculiar force" to any considerable number of people inevitably registers itself, sooner or later, if not in the election returns, at any rate, in the news.

News has been described as "anything that makes people talk." Furthermore, the ultimate sources of political power are just the sentiments that find expression in the things people talk about, namely, news. This suggests another recent book on public opinion which treats it not as a product of political parties, but of the newspaper, namely, Walter Lippmann's *Public Opinion*. The modern newspaper has, to a very considerable degree, superseded the political parties as a medium for creating and expressing public opinion.

Not only that, but the recent emphasis of the newspapers upon news rather than editorial opinion has led the public to think in terms of political issues rather than in terms of political creeds. In this way the newspaper has probably tended to undermine the basis of party loyalties and multiplied the number of independent, disinterested, or indifferent voters and non-voters.

But the difference between President Lowell's opinion and that of Walter Lippmann goes deeper. Lippmann is less interested in the machinery for registering a public opinion that, supposedly, already exists, than he is in the process by which that public opinion is formed and created. The latter is naturally the more intricate and more important problem. In fact, it is doubtful if anything particularly new or enlightening about the workings of the party system is likely to be discovered until the processes by which public opinion is made are more fully understood.

Two criticisms of President Lowell's conception of opinion and public opinion suggest themselves. First, as he defines it, opinion seems to be much more of an intellectual process than it probably actually is. Second, opinion and public opinion, as he describes them, seem to be almost wholly a matter of the individual.

If we conceive thought, as psychologists are more and more disposed to do, merely as an interrupted or incompleated act, opinion may be described as a statement made to explain or justify, to the individual himself, or to others, an impulse to act. To state the thing in this way is to put the emphasis upon the motor aspect of the process by which opinion is formed. It suggests also that an attitude or a tendency of an individual to act becomes rational and public by the very fact that it takes the form of an opinion. Looking at the matter this way we may say that all opinion is, as a matter of fact, public opinion, and the contrast between private, *i.e.*, individual, and public, *i.e.*, collective, is merely one of degree, not of kind. It is this description of the matter which has led to and justified that conception of the group or collective mind to which

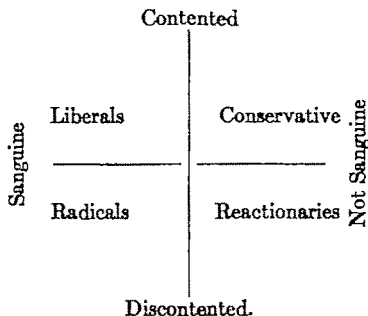
President Lowell makes an amiable reference but does not quite accept.

For the author of this book public opinion is the opinion of the majority. There are, he says, two kinds of collective opinions, those which are unanimous and those which are not, but the difference is largely a question of addition and subtraction. Add together the opinions which are alike, and subtract those differing: the result represents the effective public opinion.

Now it is evident that a mind is never a numerical sum and it is manifestly impossible for anyone to determine what his own mind is at any given moment by adding up the impulses that impell him to go north and subtracting the impulses that impel him to move south. That is not the way minds work, and if the group mind were in any sense the sum of minds of the individuals that composed it, the term itself would be misleading.

This distinction has practical significance. If the political process is an effort of the group to act, then an election is not primarily a device for recording public opinion, but for making it.

The most novel and interesting chapter in this volume is the last. Issues arise, and are settled, but the parties, under other names perhaps, remain. There are always the contented and the discontented, and there are always the radicals and the conservatives. Out of these materials President Lowell has constructed a very interesting classification of parties, on the basis of which he calls disposition. It is this:



The classification is not new, but President Lowell has made it the subject of some very interesting and ingenious observations.

The ultimate sources of political action and public opinion, it seems, are temperament and unrest, human nature and the social situation.

ROBERT E. PARK.

DAVENPORT, E. H. AND COOKE, SIDNEY RUSSELL. *The Oil Trusts and Anglo-American Relations*. Pp. 201 and pp. 62 appendices. Price, \$2.50. New York: The Macmillan Company, 1924.

Oil and politics have for some years past been intermingled if not mixed. Oil has fallen into bad flavor; politics have always been there. The combination can be nothing short of portentous. The "oil of service" has not been an "oil of gladness," and no commercial product during these later years has given to the chancelleries of the world more food for thought.

This book, written by two British specialists, deserves a reading by those who know both oil and politics; it is even more worth reading by those who know neither. In substance it is a non-technical discussion of oil concession, especially in Southern Europe and the near East, and their development by English and American companies. It shows particularly the parts played by the governments of Great Britain and the United States in advancing the interests of their respective nationals.

Though written by Englishmen the discussion is in no way prejudiced. The authors are as plain spoken against one nation as another, when facts warrant. Three things are clear in this presentation:

1. Government interference in the oil development of foreign countries is prejudicial to its own best interests. So nations as such should keep out of the oil business. Through rivalry it leads to demagogism. Government participation retards rather than promotes the development of petroleum resources.

2. It is a mistaken idea that national ownerships of oil resources is the key to power. "He who owns petroleum owns the world" is an egregious fallacy. Not oil resources but the command of the sea gives political power. In peace all can buy oil at a world price; in war the dominant naval power determines its distri-

bution regardless of ownership or production.

3. There is no immediate shortage of oil. We are producing all we need. Mexico may soon decrease, but Venezuela seems destined to increase proportionately.

Let diplomats and demagogues, as well as laymen, read this volume. To digest and act upon its sane suggestions should help to "pour oil on the troubled waters" of international politics.

HARRY T. COLLINGS.

DELBRÜCK, HANS. *Government and the Will of the People*. Academic lectures. Translated into English with notes and glossary of political names and terms, by Roy S. MacElwee. Pp. xiii, 192. Price, \$3.50. New York: Oxford University Press, American Branch, 1923.

This book, the result of a course of lectures first published in 1913, now appears as a second edition essentially in its original form, to which has been added, however, an epilogue of post-war observation made in 1920. The significance of the work is well expressed in the author's reason for issuing this edition:

Inasmuch as we now live under a constitution that has presumably sprung from "the will of the people," it is of double importance to know what this "will of the people" is, and how it came to be,—how it was called to govern, and to what extent it can govern.

Though the volume deals primarily with problems arising out of conditions in Germany, the argument is drawn not from

local or surface events of the last two decades, but from the deeper undercurrents of history and political philosophy with a masterly grasp characteristic of Professor Delbrück. He has given us, therefore, a general work on popular government—comparable to Maine and by no means less fundamental—rather than a description or an opinion of a temporary situation that will be swept away by a rapidly changing world. This is the first and most important fact about this book.

The general result, a bare statement of which is all that is permitted in this review, is to show that in no states, from the ancient Greeks to the modern democracies, has there ever been nor is there today, either under the parliamentary form as in England or under the various forms on the Continent, a government by the people in the true sense of that term. The "will of the people" is a spirit, not a form, and the final test as to popular control is not determined by mechanistic structure but by the actual relation of the individual to the government. Delbrück agrees with Maine who, in his *Popular Government*, cautions us against the fallacy of assuming that democracy is anything but a *form* of government; and that the form itself is but an inverted monarchy. Coming from the pen of so distinguished a scholar as Dr. Delbrück and at a time when the convulsions of a great war are forcing a revaluation of old conceptions, it is a book that no serious student of political science should fail to read. Here we have indeed, *multum in parvo*.

KARL F. GEISER.

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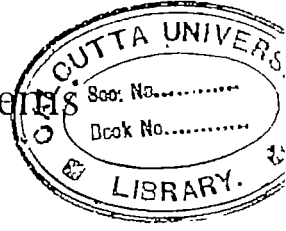
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The Automobile: Its Province and Its Problems



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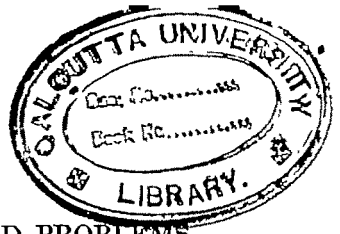
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FOREWORD

THE automobile is revolutionizing American life and American industry. The gas-driven machine has brought an era as distinct and creative as that brought by steam.

In this great transport development America leads. Of the 18,000,000 automobiles and motor trucks in operation in the world now, 15,000,000 are in the United States. We make and use nine out of ten of all the motor passenger cars and trucks in the world.

American automobilists circle the round globe 20,000 times every day!

Such energy changes life. And changes it in creative ways.

We are just on the threshold of the new day. Motor use has doubled in the past five years! No other industry has ever approached such rapidity in development.

Not a phase of American life, not even her humor, has been untouched by the automobile. The home, the school, the church; recreation, production, distribution; agriculture, advertising, plant location; legislation, highway safety, the courts; city planning, public expenditures, international problems—all have felt the driving power of the automobile and the motor truck.

This volume presents the new province of the automobile and discusses pertinent problems growing out of its use. These problems vary from the purity of roadside drinking water and the plan of the home to street traffic congestion and the financing of motor highways.

As usual in such matters the solution to these problems lags behind their creation. What shall we do to insure safety? How shall the courts be so constituted as to be relieved of petty traffic violation cases? How shall the rights of the pedestrian on the highways and the automobilist in the traffic court be protected? How shall the parking problem be met? What changes in city plans should be made? How shall we finance our motor highways? How shall we keep our highways out of the greedy clutches of self-seeking politicians?

It costs money to own and run cars. It costs money to construct and maintain highways. The costs of both will continue to mount. Society gains when the net returns from both are greater than their cost.

Twenty years ago civic leaders pictured the value of good roads. The most imaginative of them never guessed at half the truth. Let us have now community surveys that will build to meet the greater industrial future just ahead. Little can we afford to block progress by blocking traffic.

Acknowledgments are particularly due to William H. Connell, Engineering Executive and Assistant Secretary of Highways of Pennsylvania, and to James W. Follin, Research Engineer of the Highway Department of Pennsylvania, for untiring assistance and helpful suggestions and advice throughout the preparation of this volume.

CLYDE L. KING.

The Motor's Part in Transportation

By ROY D. CHAPIN

Vice-President, National Automobile Chamber of Commerce

TRANSPORTATION is the basic idea of the automobile. The man who purchases a car desires it because it will take him from one place to another place. The buyer of a truck finds use for it in carrying goods from one point to another point.

These statements are so obvious as to seem almost superfluous; but they are apparently necessary at the start of a paper on the automobile industry today, when one sees the great variety of approaches to the subject which seem to ignore the transportation thought.

THE CONSIDERATION OF MOTOR TRANSPORTATION

Most surprising is it to study catalogues of many of our large universities and note that under the heading of transportation there are many courses dealing with waterways, electric routes, particularly with the railroads, and yet in many cases there is no consideration of motor transportation.

There are in the United States today more than thirteen and a half million passenger cars and over a million and three-quarter trucks.

The various traffic surveys indicate that the average number of passengers carried daily by the automobile is about 2.5.

If we estimate the average annual mileage of an automobile as 5,000, which from the scattered record on the subject is conservative, we find that the annual passenger miles of motor travel is 168,750,000,000. When we compare this with the passenger mileage on Class I railroads in 1923, totaling 37,957,009,111, it appears that we

have before us a very considerable field for transportation study.

Probably the chief reason why only a few universities have recognized that the motor vehicle is an additional form of transportation is that the automobile has been sold chiefly to the individual.

Like the character in one of Molière's plays, who was surprised to learn that he had been talking prose all his life, the average car owner might be surprised to learn that he is in the transportation business.

He has purchased this object because it satisfies his own particular desires, and he has not stopped to realize that in the aggregate his automobile, along with the others, forms a great informal system of carriers.

With the volume of vehicles on the highways, there is coming a greater need, however, for systematizing of control, and a greater realization on the owner's part concerning his responsibility in traffic. As this sentiment develops, there will probably be an increasing public recognition of the motor car and motor truck as elements of transportation, and a growing popular interest in the subject.

MOTOR INDUSTRY AND ECONOMICS

Much of the present growth of the automobile industry may be laid first, to the fact that there existed a need for rapid, flexible individual transportation and second, to the fact that the men manufacturing the vehicles thought of their business in terms of economics. They realized that they were making rolling stock, that their product was related to other indus-

tries. that the questions of highways, taxation, road financing, and similar matters were fully as much a part of the business as the problems of production and sales.

Credit should be given to the U. S. Government, particularly to the Bureau of Public Roads, for farsighted research in motor transportation. At the same time, it is fair to note that a large part of the original research in this field has been done by the automobile industry itself, which for years past has been gathering data on the production, use and development of the automobile.

The term is appropriate, as the beginning of the industry in this country occurred virtually twenty-five years ago.

In 1899 we find the first U. S. Census reports of automobile production, the total being 3,700. Last year the output of the factories passed the four million mark.

Motor truck transportation was later in development. The first Census record here is 411 vehicles manufactured in 1904, and the total in 1923 was close to 400,000.

The following table gives a picture of the record of progress in manufacture:

ANNUAL PRODUCTION OF MOTOR VEHICLES ¹

PASSENGER CARS			MOTOR TRUCKS		
Year	Number	Wholesale Value	Year	Number	Wholesale Value
1899	3,700	\$4,750,000	1904	411	\$946,947
1904	21,281	23,634,367	1909	3,255	5,230,023
1909	127,781	159,918,506	1909-1910 . . .	10,374	20,485,500
1910	181,000	213,000,000	1911	10,655	22,292,321
1911	199,319	240,770,000	1912	22,000	43,000,000
1912	356,000	335,000,000	1913	23,500	44,000,000
1913	461,500	399,902,000	1914	25,375	45,098,464
1914	543,679	413,859,379	1915	74,000	125,800,000
1915	818,618	565,978,950	1916	90,000	157,500,000
1916	1,493,617	797,469,353	1917	128,157	220,982,668
1917	1,740,792	1,053,505,781	1918	227,250	434,168,992
1918	926,388	801,937,925	1919	316,364	423,326,621
1919	1,657,652	1,461,785,925	1920	322,039	423,756,715
1920	1,888,158	1,809,170,963	1921	147,550	166,082,000
1921	1,514,000	1,093,918,000	1922	252,668	222,635,324
1922	2,400,396	1,567,003,041	1923	392,760	311,144,434
1923	3,694,237	1,693,308,282			

¹ FROM *Facts and Figures of the Automobile Industry*, 1924.

THE SILVER JUBILEE AND ITS IMPORT

We can best realize the status of the automobile industry today if we review briefly the history of its development.

The National Automobile Shows will be referred to this winter as Silver Jubilee events.

It will be noted that truck manufacture went up to a sharp peak during the war, due to the employment of these vehicles by the army, and to the acute railroad shortage.

PLACE OF THE MOTOR TRUCK

Truck development has also been more gradual, because business al-

ready had established ways of handling its shipping, had investment in these methods, and has been conservative in making changes.

The merchandising of trucks likewise has gone through several periods, as both makers and shippers have come more clearly to understand its function.

There was a time when too much was claimed for trucks by the sellers and too much expected by the buyers.

Industry in general is coming to look upon the truck as the efficient haulage unit for short distances and especially for l. c. l. shipments. In Cincinnati, for instance, eight rail lines

The motor truck is likewise coming to be regarded as the feeder and complement to rail transportation. The Long Island Railroad, for instance, has increased its annual freight business by 2,600,000 tons since 1917. During the same period motor truck use in its territory has multiplied nearly fivefold.

MOTOR BUS A RELIEF TO URBAN TRAFFIC

The percentage of total population in our cities has increased from 40 per cent in 1900 to 51.4 per cent in 1920. The numerical increase in city population during that period was 23,924,170.

The handling of this additional

ALLOCATION OF POPULATION TODAY
(1920 Census)

GROUP	NUMBER OF PLACES	POPULATION	PER CENT
Total.....		105,710,620	100 0
1,000,000 and over	3	10,145,532	9.6
500,000 to 1,000,000	9	6,223,769	5.9
400,000 to 500,000	4	1,710,489	1.6
300,000 to 400,000	5	1,721,717	1.6
200,000 to 300,000	12	2,921,323	2.8
100,000 to 200,000	35	4,706,496	4.5
50,000 to 100,000	76	5,265,747	5.0
25,000 to 50,000	143	5,075,041	4.8
15,000 to 25,000	200	3,798,325	3.6
10,000 to 15,000	259	3,144,417	3.0
5,000 to 10,000	721	4,997,794	4.7
2,500 to 5,000	1,321	4,596,473	4.3
Rural (under 2,500)		51,403,497	48.6

have combined to have their transshipment business handled by motor truck.

More than 150 railroads are using motor units on their short lines. Some are operating these over the tracks through the employment of flanged wheels. Others are abandoning the short rail routes entirely. The Pennsylvania Railroad, for instance, is employing eleven motor truck units over short routes.

traffic has created very grave difficulties for the transit companies and accompanying discomfort for the population. The motor car and the motor bus have helped materially to relieve this situation.

The pressure of population demands has created a vast suburban development, which is served by (a) buses, (b) steam and electric railroads, plus motor cars, and (c) private motor cars on door-to-door service.

For a long while the electric railroads, alarmed by the competition of the motor bus, seeing it entering outlying districts before rail lines could be laid, and knowing that the public was willing to pay twice the street car fare for buses on the city routes, tried to place every obstacle in the way of this vehicle.

It became increasingly clear, however, that the public wanted bus transportation.

In recent years the electric roads have grasped this fact and now 134 electric railways are operating motor bus lines. In some cases they are additions to the rail equipment and elsewhere they have replaced it.

There are likewise a large number of independent companies. Also, the interurban bus business has become very popular, both in competition with existing trolley routes, and in establishing lines where there was not enough travel to support trolleys.

THE TAXICAB IN EARLY STAGES

Taxicab travel is likewise a new phase of the automobile industry. The old-style unregulated cab proved unsatisfactory, high-priced and irresponsible. Today, however, most cities have cab companies organized on a business basis. The question of what constitutes a profitable and reasonable price still seems to be a subject of considerable agitation. Some hold the view that the present size of the cab is uneconomic. One or two passengers is the usual cab load and many are prophesying that future cabs will be smaller and lighter.

RELATING AMERICAN INSTINCTS TO MOTOR GROWTHS

I do not think we can understand the economics of automobile travel or the growth of the automobile industry

without a realization of American instincts.

I have noted the status of the truck, the bus and the cab because they are part of the subject and because they are more obviously within the study of transportation, but the reason for their growth is less insistent than the basic appeal of the private car. Americans are a race of independent people, even though they submit at times to a good deal of regulation and officialdom.

Their ancestors came to this country for the sake of freedom and adventure. The automobile satisfies these instincts. The owner of a car can travel in any direction he desires and at any time. The complications of civilization probably make it necessary for the average citizen to be hedged about in most of his activities by definite working hours, conditions, places of residence, and other factors making for an ordered existence. The automobile supplies a feeling of escape from this suppression of the individual. That is why the American public has seized upon motor travel so rapidly and with such intensity. Broadly speaking, the automobile is in this way supplying an economic service. Independence is a value, even though not readily measured.

The public has found further values in the car in the more narrowly defined money-making sense. Cars permit one to live in communities where rents are lower, to save time in hundreds of types of business, to enjoy vacations at low cost, and in many other ways enable a large proportion of motor users to get back part of, or all of, or a surplus over, their investment.

The public purse could not sustain the annual investment of \$2,000,000,000 in new vehicles, with perhaps several billion more in maintenance, operation and overhead, if there were not a large profitable element in this form of

transportation, but I believe the impelling motive which has built up this demand has been the American craving for freedom of the individual.

WHAT IS THE MAXIMUM?

The U. S. Bureau of Public Roads gives the following figures of motor vehicle registration for the past ten years:

REGISTRATION OF MOTOR VEHICLES IN
UNITED STATES

YEAR	REGISTRATION	PER CENT GAIN OVER PRECED- ING YEAR
1914	1,711,839	36%
1915	2,445,666	43%
1916	3,512,996	43%
1917	4,983,340	42%
1918	6,146,617	23%
1919	7,565,466	23%
1920	9,231,941	22%
1921	10,463,295	13%
1922	12,238,375	17%
1923	15,092,177	23%

There is now an average of one vehicle to every seven persons in the country.

This, of course, is a statistical, not an actual, representation. It does not mean that every seventh person owns a motor car. There are in the 1923 figure 1,627,000 commercial vehicles. There are nearly three-quarters of a million passenger cars owned by business corporations. There are probably several hundred thousand families owning two or more automobiles.

Nevertheless, the proportion of cars to population is very high. The question arises—"Have we come to the end of the increase in this country?" In the sense that this question means whether or not we have reached the end of the unfilled basic market at this particular moment, whether a fifteen or sixteen million registration is the

total absorbable number of motor vehicles in 1924, the answer is hard to determine.

This country will increase yearly in wealth and population. The trend of our cities is towards further suburban development, calling for more individual transportation. These elemental factors in the situation mean that we may look for an indefinite gain in motor vehicle registration, not perhaps at the same percentage rate as in the past, but nevertheless a constant growth.

SIGNIFICANCE OF THE \$200 CAR

The automobile industry today is founded upon the \$200 car.

Many, who wonder how there can be the wide distribution of automobiles that exists, would concede that there is an enormous, virtually limitless, field for the \$200 and \$100 automobile, now being supplied by the used vehicle.

That automobile is today the basis of our large market and the chief reason for our expectation that increases in wealth will be promptly reflected in growing registrations. The statement that, in 1923, 2,750,000 more persons owned motor vehicles than in 1922, does not mean that that number of new owners purchased cars at the retail price. It may mean that that total, or a large proportion of it, bought used cars; and that the previous owners of these used cars, being in the higher income ranges, bought the newer vehicles.

There were 4,000,000 motor vehicles purchased last year. Perhaps a million of these replaced worn-out cars and a very large proportion of the remainder involved trade-ins, which meant a tremendous sale, perhaps 2,000,000 or more, of used cars. Where there is a trade-in, the buyer of the new vehicle, of course, does not pay the full retail price in cash by a considerable amount.

Hundreds of thousands of the cheaper grades of used cars are sold for almost nominal amounts.

According to the figures of the National Bureau of Economic Research the number of automobile owners in the country is roughly equal to the number of persons receiving incomes in excess of \$1,400. Between the \$1,000 and \$1,400 income classes there are approximately 12,000,000 persons. As their wealth increases, as they move into the suburbs, or as factories employing them are transferred into outlying districts where rents are lower, an immediate vast market for used cars is created, which in turn brings about demand all the way up the line.

AUTOMOBILE'S EFFECT ON OTHER BUSINESS

I have tried to sketch the underlying factors in the economic position of the automobile industry in the United States today. The possibilities of new markets, the demand for cars in the rest of the world, which now has but 17 per cent of the total motor vehicle registration, the further adaptation of the motor car in a variety of businesses

are too extensive to discuss in this limited space.

It is essential, however, to consider what relation the growth of the automobile industry has had to some of the other major businesses. Has the money spent for motor vehicles been diverted from other possible markets? Some seem to feel that it has and perhaps this has been the case in specific instances. We cannot measure this definitely, however, because most of the wealth involved may have been created by the vehicle itself in the saving of time. Further, it is possible that the individual exerted himself to a greater degree in order to purchase an automobile.

In short, without the automobile there may well have been less development of the country and lower productivity, rather than that number of dollars available for something else. Undoubtedly, specific railroad and electric lines have suffered severe competition from the motor vehicle. In such cases the public apparently decided that motor transportation was the more satisfactory.

This form of travel has, however,

RAIL LINES AND MOTOR DEVELOP SUBURBS*

(The following table shows the steady increase in both motor and rail travel in Long Island, a suburban district of New York City. The motor vehicle registrations and new dwellings figures are for those counties on the island not within the city limits.)

	PASSENGERS CARRIED BY LONG ISLAND R. R. SYSTEM	MOTOR CARS REGISTERED†	FREIGHT TONNAGE CARRIED BY L. I. R. R.	MOTOR TRUCKS REGISTERED†	NEW DWELLINGS CON- STRUCTED
1917.	50,796,028	11,829	5,271,509	2,482	8,863
1918.	55,486,000	19,710	5,798,876	3,884	1,158
1919.	64,007,541	24,809	6,916,886	4,574	7,911
1920.	72,743,820	24,709	5,886,969	5,430	7,581
1921.	75,506,045	32,360	5,572,679	7,566	16,197
1922.	79,656,891	41,111	6,028,008	10,245	23,336
1923.	86,194,489	51,673	7,917,977	11,176	31,699

* From *Facts and Figures of the Automobile Industry, 1924.*

† For area not in Greater New York.

been by no means entirely competitive. The Long Island Railroad, for instance, is today handling a maximum of passenger traffic in a suburban vicinity where motor registration has increased very rapidly. The car and the truck may be regarded as very effective complements to the railroad in most suburban sections, as they permit radial development around the railroad station.

In fact, as the gridiron of steel tracks developed this country along their borders, so we may look for an intensive outlying growth as the pressure of population makes it necessary.

As a shipper, the automobile business is one of the railroads best customers. It ranks third among manufactured articles. We find petroleum and its products, which is to a large degree a part of the automobile business, is first. The table below indicates the situation:

MOTOR INDUSTRY THIRD LARGEST RAILROAD SHIPPER OF MANUFACTURED ARTICLES IN 1923

(Figures from Interstate Commerce Commission)

	CARLOADS		CARLOADS
1. Refined petroleum and its products	1,306,390	7. Iron, pig and bloom	309,145
2. Bar and sheet iron, structural iron, and iron pipe	915,892	8. Castings, machinery and boilers	290,800
3. Automobiles, trucks and parts	797,307	9. Chemicals and explosives	289,815
4. Cement	552,987	10. Lime and plaster	231,415
5. Brick and artificial stone	532,613	11. Ice	198,052
6. Fertilizers (all kinds)	328,051	12. Agricultural implements and vehicles other than automobiles	177,438

The automobile, presumably, has not added to the actual amount of food purchased. It has, however, been seized upon by the farming element for its time-saving and social advantages. It enables the farmer to get to market more quickly, to have a wider range of markets, and to take advantage of the best prices. There are 4,500,000 cars and trucks owned by farmers.

The degree to which the automobile industry has supplied a market for raw materials is best indicated by Table I on following page.

The manufacture of cars and trucks, together with all the workers in related employments, has a very considerable effect on labor demand. The extent of this demand may also best be indicated by the statistical method as shown in Table II on following page.

IN CONCLUSION

How much the automobile is a result of, or creator of, general prosperity it is difficult to determine. It is, at any rate, interesting to note that the investment by the public in motor vehicles has been accompanied in the past few years by a continual upward trend in various forms of savings. Assets of building and loan associations have tripled, life insurance is more than two and a half times as great, savings bank deposits are nearly double, total individual bank deposits are

more than twice what they were in 1913.

In conclusion, may I revert to the initial statement that the automobile is a phase of transportation. I have not touched upon the subject of road development, financing and other matters which are pertinent, but are being covered elsewhere in this volume.

A scientific study of the automobile industry will, however, always take these factors into consideration.

Here exists a vast and valuable field for economic research.

TABLE I—RAW MATERIALS USED IN MANUFACTURING MOTOR VEHICLES DURING 1923*

	AMOUNT USED IN MOTOR VEHICLE MANUFACTURING AND PER CENT OF TOTAL PRODUCTION OF MATERIAL
Iron and steel (tons)	3,434,800
Per cent of finished rolled steel and iron output used in mfg. cars and trucks	10 2%
Copper (pounds)	121,949,160
Per cent	9 3%
Aluminum (pounds)	91,514,000
Plate glass (square feet)	47,229,500
Per cent	53%
Upholstery leather (square feet)	60,000,000
Per cent	69%
Asbestos (feet)	60,000,000
Rubber (pounds)	547,468,544
Per cent	80%
Hair and padding (pounds)	40,870,000
Lumber, hardwoods (board feet)	1,163,232,000
Per cent	14%
Top and side curtain material (yards)	30,389,000
Lumber, soft wood, crating for railroad shipments and ex- ports	300,121,000
Upholstery cloth (yards)	19,036,000
Lead (pounds)	135,349,000
Per cent	12%
Tin (tons)	7,300
Per cent	10%
Nickel (pounds)	6,275,000
Paint and varnish (gallons)	14,304,500
Imitation leather (square feet)	166,319,000

* From *Facts and Figures of the Automobile Industry, 1924.*

TABLE II—3,105,350 PERSONS EMPLOYED IN THE AUTOMOBILE INDUSTRY*

EMPLOYED DIRECTLY		EMPLOYED INDIRECTLY	
Motor vehicle factory workers ..	318,100	Iron and steel workers	62,000
Parts and accessory factory work- ers	300,000	Copper, lead, tin, nickel and alum- inum workers	13,000
Tire factory workers	114,750	Railroad workers	80,000
Motor vehicle dealers and sales- men	181,000	Plate glass workers	12,000
Supplies, accessories and parts, deal- ers and salesmen	135,000	Tannery and leather workers	10,000
Garage employes	110,000	Woodworkers	25,000
Tire dealers and salesmen	90,000	Upholstering cloth, top and side curtain material workers	20,000
Repair shop employes	345,000	Asbestos workers	500
Professional chauffeurs	470,000	Paint and varnish factory work- ers	1,000
Professional truck drivers	750,000	Coal miners	2,500
Gasoline refinery and oil workers ..	60,000		
Automobile financing and insur- ance	5,500	Total indirectly employed ..	226,000
Total directly employed ..	2,879,350	Grand Total	3,105,350

The figures for the various industries are based on the per cent of total output of product consumed by automobile industry. No estimates attempted for the number of people working on curled-hair and other forms of padding, road construction work, manufacturing of machine tools and other production equipment, extension of automobile plants, etc.

* From *Facts and Figures of the Automobile Industry, 1924.*

The Automobile and Allied Trades and Industries

By ALFRED H. SWAYNE

Vice-President, General Motors' Corporation; Director, National Automobile Chamber of Commerce

IN the short space of two decades, the automobile has developed new world markets for practically all of the basic raw materials entering into trade and commerce.

So far-flung are the trade relations of the motor vehicle industry that only an exhaustive research would reveal all of them. One could set forth on a journey from Detroit—visiting all the principal ports and manufacturing centers of the world—and find in each its contribution toward meeting the universal demand for individual transportation. Rubber from India, Sumatra, Ceylon, Java and the Malay Peninsula; cotton from the banks of the Nile; aluminum from the bauxite ores of France, Germany, Dutch Guinea, and aluminum metal from France, Norway, England, Switzerland and Canada; and copper from Mexico and Chile but serve to illustrate the automobile's widespread participation in world commerce.

ACTIVITIES INCIDENT TO MOTOR'S ADVENT

The direct influence of the industry is shown by the fact that in 1923, twenty-nine states of the Union and the District of Columbia had a part in motor vehicle manufacturing.

Three hundred and fifty-one factories are reported—Michigan heading the list with fifty-four of them.

More than 318,000 wage-earners were directly employed in the manufacture of vehicles in 1923, and indi-

rectly 3,105,000 wage-earners received some of the automobile manufacturing dollars which went into circulation in payment for men and materials.

Production of motor cars and trucks reached a total wholesale value exceeding two billion dollars, a transportation investment of great economic importance.

Almost as great in extent are those industries and activities arising from the development and use of the motor vehicle. First among these is the nation's highway-building program. Since the early days of this new transportation there has been an incessant and ever-increasing demand for better roads on which to operate the automobile. Each year has seen a rise in the magnitude of road-building operations, threatening to rival in scale the automobile industry itself. Somehow never able to keep pace with the demand, the present cost of our national program of construction and maintenance for rural highways amounts to approximately \$1,000,000,000 a year.

Borne on the crest of this wave, the road machinery industry has had a tremendous impetus since the war, when we settled down to road construction in earnest. Half the asphalt and 20 per cent of the country's cement output are today going into the highways.

Many states have a highway plant with the number of employes running into five figures and annual financial programs of many millions. This activity is adding not alone to the prosperity of the state or locality

directly engaged in the work, but to that of the entire nation.

In the transportation field, the automobile industry is the third best manufacturing customer of the railroads, closely allied industries occupying first and second place.

The waterways took 80,000 cars on the way to their destination. More than \$142,000,000 was derived by the rail lines in revenue from the transportation of the completed vehicles, not to mention the coal used in their manufacture, the movement of parts and raw material such as lumber and steel, and machinery. Shipping all these passenger cars and trucks at one time in 100 car trains would have taken 6,500 miles of track. It would have made up two trains passing through Chicago and reaching the four corners of the country. The engine of the first train would be in Seattle, Washington, at the time the caboose was leaving Jacksonville, Florida, while the engine of the other train would be in Boston at the time the caboose was leaving Los Angeles, California.

First on the railroad's list of customers among manufacturers are refined petroleum and its products. Of the 6,685,035,280 gallons of gasoline consumed in the United States during last year, 85 per cent was used in motor cars and trucks, every vehicle running using an average of more than $1\frac{1}{4}$ gallons a day or an average of 450 gallons for the year.

Second on the list are the steel and iron people. More than 10 per cent of their products are utilized in the production of motor vehicles, either in construction of the car itself or in parts and accessories utilized later on. W. C. Hirsch, writing in *Automotive Industries*, predicts that new motor car and replacement requirements will equal, if not exceed, the de-

mand of the railroads on the steel industry for passenger and freight car materials.

Paralleling, of necessity, the growth of motor vehicle manufacturing has been the growth of the tire industry, now utilizing 80 per cent of the country's crude rubber supply. New sources nearer fabrication are being sought and governmental surveys as to production possibilities are being made.

According to the 1923 survey of manufactures of the Bureau of the Census, 160 establishments are engaged in the manufacture of tires and inner tubes, while a total of 528 are engaged in the manufacture of rubber products. Ohio leads the list with 105 of these factories, closely followed by Massachusetts and New Jersey and 26 other states scattered from the Atlantic to the Pacific. In 1923 nearly 100,000 persons were directly employed by these 160 plants.

Coal miners came in for a share of the automobile dollars when they mined the 1,478,261 tons of coal used in the manufacture of tires, and in the mining of another million and three-quarters tons consumed by the automobile factories.

Along in 1920, closed automobiles came very largely into favor and, as a result, the plate glass industry felt a tremendous urge to increased production. Today 53 per cent of its output goes into windshields and into the manufacture of closed cars, which are now exceeding 35 per cent of the total of cars produced.

Mexico and Chile, our neighbors to the south, as well as Arizona and Colorado nearer home, send us copper, more than 9 per cent of which goes into the finished vehicles, along with 91,000,000 pounds of aluminum, some of

which crosses the ocean from France, Germany and Dutch Guinea.

The Joplin district of Missouri furnishes zinc and lead for batteries and similar uses, which took 12 per cent of the supply.

The slaughtering and meat packing industry sells 69 per cent of the upholstery leather supply to motor manufacturers, who also use 166,000,000 square feet of imitation leather; in addition, 19,000,000 yards of upholstery cloth and 20,000 tons of hair and padding enhance the facility of riding comfort.

Paint and varnish to the extent of 14,000,000 gallons adds to the attractiveness and durability of the vehicles and to milady's pride in her car.

Asbestos from Canada is turned by American factories into brake linings for motor cars and motor trucks.

Hardwood lumber from the Northwest for floor boards, bodies, wheels and other uses took up 14 per cent of this supply, while nearly a third as much soft wood lumber is utilized for crating railroad shipments and for export.

Three thousand tons of nickel embellishes the radiators, lights and horns, while 10 per cent of the country's tin supply is bought by the automobile makers.

A separate function in itself, the distribution and servicing of the 15,500,000 motor vehicles now in operation, has brought into existence an ever-increasing number of establishments which cater to the convenience and comfort of the motor vehicle user. Nearly 90,000 of these places of business are in operation in the United States and 2,500 in Canada.

The Chilton Trade Directory List, as

of September, 1923, shows the following classification with considerable natural duplication of functions:

Charging stations.	4,5
Exclusive passenger car dealers.	19,2
Garages.	52,5
Repair shops and service stations.	69,6
Supplies.	68,0
Exclusive truck dealers.	2,4
Passenger car and truck dealers.	23,5
Ford dealers.	10,4

The multiplicity of functions of many of these accounts for large individual groupings; yet the total is smaller by reason of the fact that a single garage or service station may render several types of service.

Not all the gasoline is consumed by privately-owned passenger cars and trucks. More than 80,000 taxicabs travel from 60,000,000 to 70,000,000 miles a year, constituting quite an industry by themselves.

Then there are the terminal motor truck companies; the bus companies like the Fifth Avenue Bus Company, the Detroit Motor Bus Company, and thousands of independent bus lines operated in all parts of the country. The busses and trucks operated by the trolleys, steam railroads and waterways are contributing both to the upbuilding of national transportation and to the growth of the oil industry.

Calling the roll state by state, each responds with its part in the industry from New England's textiles to Pennsylvania's coal; Colorado and Arizona with copper; Missouri with zinc and lead; the Northwest with lumber and the South with cotton, each important to the making of the vehicle. At the same time, each plays an important rôle in the distribution and utilization of the finished product.

If we trace the influence of the industry still further, we will find it an indi-

pensable part of the retail field. To its line of purchases the drygoods store now adds motoring accessories, sport clothes, blankets and other apparel necessary to passenger car use. Hardware stores carry flash lights and tools. Banks issue special checks for tourists. Hotels find a new and profitable business in the motor traveler. The farmer sets up wayside markets to reach the city dweller. A parts and accessory business with a turnover in excess of a billion and three quarters enters into the reckoning. And so on through the entire list of trades and occupations.

Then too, great additional stimulus

has arisen from the search for substitutes; for new sources of raw materials; in the refinement of methods and development of by-products. A particularly noticeable instance is gasoline which was formerly the by-product of petroleum, while kerosene was the mainstay. The motor vehicle reversed their positions, and built a far greater industry out of the formerly unimportant product. Countless similar situations might be added by a detailed and careful analysis, all weaving closer and closer the vital and mutually advantageous relationship of the automobile and allied trades and industries.

The Automobile and American Agriculture

By JOHN M. McKEE

Deputy Secretary of Agriculture, Commonwealth of Pennsylvania

THE number of motor vehicles on the 6,500,000 farms in the United States is estimated at 4,200,000 automobiles, 370,000 trucks, and 450,000 tractors.¹ This stupendous total of potential power for transportation to market, to church or to school, as well as for other work and for recreation, has been almost wholly developed within the last fifteen years and chiefly during the last decade. In fact, the number of automobiles and trucks has doubled since 1919. Approximately one-third of all automobiles in the United States are now owned by farmers.

MOTOR VEHICLES REVOLUTIONIZE TRANSPORTATION

In this short period of time the method of travel and hauling, which

had obtained for many decades (by horse and buggy or wagon chiefly), has been completely revolutionized. There has not yet been time to adjust our social, religious, educational or economic institutions and agencies to this new era in motive power, which breaks down all the old barriers of time and distance against which the farmer has struggled. While our social and economic institutions are in this stage of adjustment, it is difficult to evaluate the significance of motor vehicles in agriculture. An inquiry to agricultural colleges and state departments of agriculture brought forth very few definite facts as to the effects of the automobile upon agriculture. All see a great transformation taking place, but it has not yet been possible to more than speculate as to results.

The fact that approximately 7 per

¹ Estimate by U. S. Department of Agriculture, Bureau of Public Roads.

cent of farms have tractors, 6 per cent trucks and 65 per cent automobiles, is significant and is an indication of the dominant motive back of the purchase of cars by farmers.

FARM HOME AND COMMUNITY LIFE ENRICHED BY AUTOMOBILE

An eminent agricultural leader has wisely said, "The chief function of the farm is as a home." It is to the making of this home more enjoyable and more worth while that the automobile owes its greatest popularity and takes its place in the front rank as a contributor to the farm home, better communities and a more sound social and economic structure.

While American farm life has had much that is good and has contributed richly to its people, yet it has been grievously handicapped in many ways by the limitations of time and distance, growing out of its restricted transportation for decades previous to the advent of the automobile.

One needs to have lived in the open country to appreciate the change from the old to the new conditions. Formerly, the marketing of eggs and butter and the purchasing of household necessities was commonly done at the nearest country store, regardless of the possible low prices offered for farm produce or the poor assortment from which to purchase household needs. A trip to the county seat was a rarity occasioned by the need to pay taxes or outfit the children for school. A journey to a nearby county to inspect improved farm methods, to attend a sale of pure bred livestock or to enjoy recreational opportunities was only for a limited number. Social contacts were few and commonly limited within a radius of a few miles; the educational facilities were meager and the opportunity to bargain in the sale of farm

products or the purchase of supplies was almost absent. All this has been revolutionized by motor vehicles.

Trips which formerly required a period of several hours, oftentimes accompanied by exposure to rain or storm, are now made in a much shorter period, in comfort and in cleanliness, protected from the weather. This ease and comfort in travel is a leaven that is already working fundamental social and economic changes, which will be reflected in the life of the family, the community, the church, school, grange and business centers.

Freedom from the limitations of time and distance, which the automobile has brought to the farm family, will probably play a greater part than any other single factor in making for a satisfied farm family. True it is that it makes the city or town readily accessible to those who do not like the farm. It is well that such should have an opportunity to follow other vocations. This will mean that those who remain are there because they have seen other conditions and have decided in favor of the farm, in which the farm home and farm work are so inseparable. It is bringing within easy reach of the homes the best that the city has to offer in the way of entertainment, educational opportunity, shopping facilities, etc., without losing the many good things of the farm. Coupled with this greater freedom and a satisfied state of mind goes a better health service, both in the form of timeliness of the treatment and the accessibility of specialists in different lines. Better farming is inevitable from the ease with which the family may go out and see improved methods in farm operation or the results of improved livestock in their own or neighboring counties. Religious and social sides of farm life also take on a brighter view.

This reduction in time and distance

for travel inevitably means larger centers for community activity. It is going to challenge the attention of the rural leaders of our religious, educational and social institutions to find the best methods by which to adjust their primary group, such as the church, school or grange, serving the smaller community, to this new condition. Formerly the grange provided that the subordinate granges should not be closer than two miles to one another. While there was no provision as to the distance of schools and churches, it is common knowledge that in the more densely populated sections they are found based on the distance that the child can walk to school or Sunday school. It seems inevitable that such institutions must adjust themselves on a basis of larger centers.

Rural life studies have shown that every community should recognize six essential services to be made available to its people. These are: the economic, including merchandising, marketing and financing; educational; religious; social; communication; and organization.²

The automobile and truck are certainly contributing greatly to the creation of centers large enough to provide all of these services.

AUTOMOBILE A FARM BUSINESS ASSET

Most discussion on motor vehicles thus far has dealt with their economic importance. All phases of life on the farm are so intimately associated that it is difficult to isolate any one feature. While not its greatest contribution to farm life, there is no question but that the automobile renders a real economic service.

That reducing the time and extending the scope of travel results in a

greater outlet for farm products is commonly found. The farmer is meeting more people, knows the markets and prices better and is therefore in position to sell to greater advantage. The same advantages hold true in the purchase of farm supplies, implements, repairs, etc., in the way of gaining lower prices, having a greater selection from which to choose and securing emergency repairs quickly.

The farmer is learning how to take advantage of the services of his bank. He meets his banker oftener and counsels with him on business problems and investments. In the past, farmers constituted one of the best fields for fake schemes, with the result that they have been fleeced out of life-time savings.

With the scarcity of farm labor and high prices, the saving of time is increasingly important. Ofttimes the wife or daughter finds it pleasant to run into town to take care of errands, saving the time of the man and breaking the monotony of the strenuous work in the farm household. Estimates of the average annual cost of operating farm automobiles range from \$200 to \$300, of which from \$50 to \$100 a year should be charged to pleasure and the balance directly to farm business. This charge is not particularly high when one considers that the majority of the farm automobiles are touring cars, five passenger or larger, being equivalent to a two-horse conveyance. They have in a great many cases replaced the driving horse, so that the expense of the car is not all additional cost. A portion of this, if the car were not owned, would be expended on the keep of horses. The horse, of course, would be consuming the farmer's own product (the grain or hay which he grows), whereas the car requires a cash purchase. In most cases the farmer will arrange to feed his hay and grain

² "Service Relations to Town and Country." Research Bulletin No. 58. University of Wisconsin.

to some other livestock which will probably make him a better return than the driving horse. There is no doubt that the use of motive power vehicles has tremendously reduced the demand that otherwise would have existed for farm grains and roughage. This is being overcome by a greater expansion of other lines of the livestock industry to profitably consume the feed of the replaced horse.

VALUE AND USE OF TRUCK

Only about 6 per cent of the farms have trucks, but this does not represent the extent to which the truck is of service to the farmer. There is a very extensive development of truck routes not owned by farmers, but which conduct a commercial hauling service. One large dairy organization reports 250 truck routes in operation, the majority of which take the milk direct from the farm or from a nearby loading platform.

Farms using trucks are usually the larger ones, those more removed from markets, particularly truck farms. Studies indicate that the distance to market is on an average of eight miles for all farms, twelve miles for truck farms, and six miles for dairy farms.³

Preference for the one-ton truck far exceeds all others, amounting to 60 per cent of all. The trend is for larger trucks, those above one ton rather than less than one ton.

Time required for hauling over different distances by the truck has been found to be about one-third of that required by wagon, the variation being somewhat greater as length of trips increases.

To this time-saving feature 90 per cent of the farmers attribute the chief

value of the truck. This may also apply to the saving of hired help (78 per cent reported a saving in number of hired help required), and also a reduction in the number of horses, particularly on the larger farms. Of the truck operators, 42 per cent reported reduction in number of horses, amounting to approximately one horse per truck.

The estimated annual cost of operating farm trucks, exclusive of depreciation, is \$244 for 1920 and \$155 for 1923.⁴

Probably no single farm operation uses the truck so extensively as the hauling of milk. This is because trucks operate every day over definite routes. Reports from leading dairy states indicate that the amount of milk delivered by automobile truck to receiving stations or distributors ranges from 20 to 95 per cent, averaging around 75 per cent. Milk was delivered to receiving stations or to distributors by motor truck to the following cities in the per cent shown:

	<i>Per cent</i>
Baltimore.....	45
Philadelphia..	20
Cincinnati.....	97
Detroit.....	88
Milwaukee.....	87
St. Paul, Minneapolis, Indianapolis (each).....	94 ⁵

The rate is usually about the same as that of the railroad, running from 1½ cents to 3 cents per gallon, usually in ten-gallon cans. The routes commonly run from twenty to forty-five miles in length, with many extending a greater distance. Of course the trucks of larger capacity are used on larger routes. Loads of 100 ten-gallon cans are common. In most cases the trucks operate throughout the entire

³ U. S. Department of Agriculture Bulletin 1201—Motor Trucks on Eastern Farms.

U. S. Department of Agriculture Bulletin 1814—Motor Trucks on Corn Belt Farms.

⁴ U. S. Department of Agriculture. Bureau of Public Roads.

⁵ U. S. Department of Agriculture. Bureau of Public Roads.

year. The return of the empty milk cans is included in the per gallon charge.

As the methods of handling milk are being perfected, it is found that fewer cans are required and the loss of cans per year is decidedly less by truck. A recent development is that of the glass-lined tank truck on a three to five ton chassis. These are used for transportation between the receiving station and the distributing center and are not being used for collection from farm to farm as yet.

In addition to the feature of actually transporting the milk, the truck opens up a new territory within a radius of fifty to seventy-five miles of consuming centers and offers to the farmers thus served a ready market for a major farm enterprise.

The quantity of farm products being transported to the market or receiving station is surprisingly large. Reports from twenty-four states indicate that milk, butter, eggs, fruit, potatoes and hogs are being delivered in quantities ranging from 10 to 95 per cent.

Connecticut reports an estimate of 90 per cent of all farm products being delivered by truck, and California, 75 per cent.

The truck has increased in importance as a carrier of livestock within a range of seventy-five miles of market centers. One day one-ninth of all the sheep arriving at the Kansas City yards came by auto truck. The truck has won particular favor as a medium for transporting hogs. This is done with less loss of animals and eliminates cartage or hauling to shipping stations and permits the shipping of less than carload lots when hogs are in prime market condition. Within a fifty-mile zone around Indianapolis, 90 per cent of the hogs are hauled by truck.⁶

⁶ Robert E. Browne. U. S. Bureau of Public Roads. August, 1924, issue of *Public Roads*.

The return trip carries chiefly four kinds of loads: (1) Feeder animals for the farms; (2) Farm supplies, feed, fertilizer, etc.; (3) Merchandise; (4) Manure.

MOTIVE POWER REDUCES LOCAL TRANSPORTATION COSTS

Studies by the Bureau of Crop Estimates of the Department of Agriculture in 1918 show that the estimated cost for hauling in wagons from farms to shipping points averaged about 30 cents per ton mile for wheat, 33 cents for corn, and 48 cents for cotton; for hauling in motor trucks or by tractors the averages are 15 cents for wheat and corn and 18 cents per ton mile for cotton. While most of this hauling is done by the farmers themselves, the costs are based largely upon the usual charge in the various counties for hiring vehicles by the day.

The second report shows that 33 per cent of those who answered the Department's questionnaire had changed from a poorer to a better market as the result of truck purchase, with an increase in the average distance to market from eight miles before the change to sixteen miles afterwards. Before the purchase, 73 per cent were using markets less than 10 miles distant; now 64 per cent go to markets ten miles or more from their farms and about one-fourth go to markets more than twenty miles away. Incidentally, it is interesting to note that 92 per cent of those who were using trucks in 1919 still use them, and of the remainder half have purchased new trucks to replace the old.⁷

The cost of local transportation, getting products to the assembling station or nearby consumers, has been out of all proportion to long haul costs in the past. Government studies have shown that local transportation absorbed more than 5 per cent of the total value of goods transported, while the long haul of the railroads amounted to about 6 per cent. The automobile

⁷ A. J. Brosseau, National Automobile Chamber of Commerce Publication entitled, "Highway Transportation and the Farmer."

or the truck offers a means of reducing these haul costs.

TRUCK SERVICE TIMELY

With many farm products the question of timeliness is fully as important as the rate charges and in this field the truck is preëminent for hauls up to 100 miles. This feature applies to a great majority of farm products, such as livestock, preventing shrinkage and loss by death; such as milk, making it possible to maintain the right temperature which results in high quality; and such as vegetables, making it possible to get to the market with the produce fresh and at a favorable time for sale.

In every case the delivery time by truck was less than by rail. Where a carload or less than a carload shipment took twenty-eight hours by rail to Springfield, forty-four miles away, a three-and-one-half-ton truck did the job in four hours and a smaller truck more quickly. The distance to Boston (112 miles) was covered in twelve hours by a three-and-one-half-ton truck, sixteen hours by a five-ton truck and required thirty-two or fifty hours by rail depending upon the class of shipment.

Probably most farmers will be benefited by the service of the motor route coming by their door, taking their products, and delivering them to markets or shipping points, so that the farmer is left free to remain on the farm and direct operations there; for he is essentially a producer rather than a transporter or marketer. This service will result in more farm products being produced and much being marketed that in the past has been largely permitted to go to waste. In the end both the consumer and farmer will be benefited by the service this intermediate agent in transportation can render.

MIGRATION TO CITY CHECKED

Much has been written about the danger of migration from the farm. This movement has had two impelling motives: First, an economic one, reflecting the disparity in returns between farm work and industrial labor; second, the dissatisfaction coming from the limitations of farm life. While the rewards of the farmer are not all measured on an economic scale, adequate financial return is essential in order that the farm may favorably fill its chief function as a home. This return is necessary in order to provide modern conveniences for a satisfactory standard of living. There remains to be supplied, however, the social, cultural and religious opportunities of life, which have taken many from the farm. In addition to its economic contribution, the automobile brings the few remaining attractions of the city within such easy reach of the farm family that all incentive to migrate city-ward will soon be gone.

Given a reasonably fair economic equilibrium between the income on the farm and in the city, it can safely be predicted that the automobile with improved roads will place the farm family, located in the open country in the midst of a heritage of broad acres and surrounded by improved crops and livestock, in an enviable position. Those remaining on the farm will be there because they realize that this is where they can live the most complete and satisfactory life. This feeling comes largely because the automobile brings freedom of travel and a reduction of time and distance which are important factors in making farm life more worth while.

The Motor's Part in Public Health

By JOHN C. LONG

Manager, Educational Department, National Automobile Chamber of Commerce

PONCE DE LEON tried to find the fountain of youth; and thus established himself as perhaps the most quixotic man in history.

The Greeks consulted oracles, Macbeth placed himself in the hands of witches, and the modern business man gazes hopefully upon charts and statistics.

All this is a preface to saying that no panacea is complete and that most silver linings have their dark clouds.

Accordingly, the statement that the automobile is a great contribution to public health, while true, is subject to limitations.

While setting forth here some of the ways in which the motor vehicle has contributed to physical well-being, it is pertinent to note that the advent of the car is simply one of the many phenomena that have been working in that direction.

It may be assumed that the reader is somewhat familiar with the progress of modern sanitation and with health education. He will not, then, make the mistake of thinking that this paper is presenting the automobile as a cure-all. It is not a panacea, but a tonic, nor is it the kind of tonic which leaves a bad taste the morning after, unless taken in excessive doses.

Perhaps, however, it is well to list the harmful effects first. One must note the tragic record of automobile fatalities and injuries, amounting to 16,000 of the former and several hundred thousand of the latter during the past year. This is a serious hazard which must be dealt with. What can be done to meet this situation is discussed elsewhere in this volume. The

most hopeful aspect of the case is that these disasters very largely can be prevented.

It is also possible that the prevalence of automobiles has been responsible for some decline in walking as well as in bicycle riding. Where this decline has not been replaced by other forms of exercise, it is probable that one should check up a loss in public health.

GROWTH OF OUTDOOR MOVEMENT

But the tendency toward outdoor recreation has been very marked. The present extent of golf playing would be impossible without the automobile. It is true that this sport is chiefly available to those in the higher income ranges, but it nevertheless effects a large number of persons.

More democratic is the development of motor camping, which has become a national pastime.

Our National Parks were visited by 29,000 motorists in 1916 and by 271,000 in 1923. In the National Forests during 1923 there were 8,975,000 motor tourists, which was two and one-half times the number in the preceding year.

Virtually every town west of the Alleghenies has its camp site, which is visited by hundreds, sometimes by thousands, of tourists every year.

This new national pastime of camping has given literally millions of families the beneficial experience of sleeping in the open air. The physical effort of pitching a tent, packing the gear, preparing the camp meals and doing the camp laundry is considerable, as anyone who has tried it knows. In these chores also may be found, for

many, a psychological benefit. Modern civilization with its steam heat, steam laundries and other automatic devices has so organized the details of existence that the physical labor of the bulk of mankind has been minimized. The very difficulties of camping may account for some of its popularity.

BENEFITS FROM DRIVING

While a very large percentage of the motorists are modern Daniel Boones, it should likewise be said that the family which uses its car only for neighborhood tours also finds it an instrument for health. The very act of driving is considered by physicians to be beneficial. U. S. Senator Royal S. Copeland, former Health Commissioner of New York City, has this to say on the subject:

Of course motoring bestows its greatest benefits on the person who drives the car. Not only does the driver get the full benefit of open road and fresh air, but he gets actual physical exercise in a form best calculated to repair the damages wrought by our modern existence. The slight physical effort needed in moving the steering wheel reacts on the muscles of the arms and abdomen. Most of us get enough exercise in the walking necessary, even to the most confined life, to keep the leg muscles fairly fit. It is from the waist upward that flabbiness usually sets in. The slight, but purposeful effort demanded in swinging the steering wheel, reacts exactly where we need it most. Frankly I believe that steering a motor car is actually better exercise than walking, because it does react on the parts of the body least used in the ordinary man's routine existence.¹

It is true that one occasionally meets a modern Thoreau who laments the motorization of our highways and the conquest of the wilderness by the populace. For him one must have sympathy and recognize considerable

justice in his plaint, but in terms of mass recreation, bringing the millions into contact with the outdoors, credit must be given largely to the automobile.

BETTER AND PROMPTER MEDICAL TREATMENT

This health-building preventive aspect of the situation is the particularly encouraging side of the picture.

But the automobile is likewise proving an effective aid in the field of medical relief. Pennsylvania, for instance, has an inspector who drives about the state inspecting the water of roadside streams.

North Carolina has ninety public health officials, most of whom cover their territory by means of motor transportation.

The number of physicians in the country has declined in the past ten years despite the growth of population, as noted by the following figures from the U. S. Bureau of the Census:—

1910....	151,132 physicians
1920 ...	150,007 ² “

Considered in ratio to population the figures are these:

1910.....	1 physician to 608.5 persons
1920.....	1 physician to 704.7 persons

To say that this reduction in the number of doctors may be accounted for by the time-saving factor of the automobile will meet with a challenge; and yet it can be in considerable measure sustained. It is true that more effective sanitation may have reduced the need for the doctor's aid. It is also

² The ownership of automobiles by physicians is virtually universal, though there are a few exceptions among those doing chiefly office practice. Based on questionnaires and checking of registration lists, the National Automobile Chamber of Commerce estimates that 144,000 cars are owned by doctors.

¹ From *Motor*, July, 1922.

possible, as some assert, that the financial rewards of the doctor today, considering the difference in the purchasing power of the dollar, are not as attractive as they used to be. Also, higher educational requirements are sometimes given as a leading reason for the limitation in the number of physicians.

On this last point, the automobile has probably had a noteworthy effect. The individual is not dependent upon the service of his neighborhood physician. If the country doctor does not keep abreast of the times, the farmer clientele can drive into town. The opportunity of the public to choose, made possible by the wider range of transportation, tends to keep the standards high.

But whatever may be the dominant cause in the reduction of the number of physicians, certain it is that the doctor's life has been made more efficient and more agreeable by the introduction of the automobile.

WHAT 2,286 THINK ABOUT IT

The National Automobile Chamber of Commerce some months ago sent a questionnaire to 10,000 doctors, asking them whether they owned automobiles and to what degree motor travel had contributed to their efficiency. There were 2,286 replies. Virtually all of these were possessors of motor cars. A few, less than fifty in all, stated that they used their vehicles for recreation only, as their work was confined to office practice. Some of these noted that their large office practice was possible because of the large radius of motor travel.

More than a fifth stated that their efficiency was doubled, a similar number noted a 50 per cent gain and 5 per cent stated that their effectiveness was trebled through the use of motor transportation.

Nearly all noted that motor travel was a great help to them in their work. The burden of the replies can best be illustrated by four or five quotations:—

Draw your own conclusions as to the increase in efficiency of a country doctor, as to percentage it is as the German mark to the U. S. dollar at present.—Forest Grove, Oregon.

Without car would be confined to a small territory. Now can see patients in any part of the city or in surrounding country.—Portland, Oregon.

Do twice the work in half the time.—Mine La Motte, Missouri.

Affords: (1) Prompter service; (2) Opportunity to get out to attend medical clinics and societies; (3) Get in touch with modern advance in medicine; (4) Enlarges one's ability to help neighboring physician during his absence.—Fernville, Michigan.

Spend more time at house and office, volume of practice has not increased.—Troy, Texas.

It would seem impossible to practice medicine in this day without an automobile.—Lincoln, Nebraska.

Questionnaires, to be sure, have their quagmires. One does not know how much care has entered into the replies. A personal instance is often more convincing.

The writer has a friend who is a doctor in a Connecticut farming community. Without preliminary discussion of the subject, he asked the physician to describe the difference between the profession of doctoring by motor travel as compared with the horse and buggy days. Here is the doctor's comment:

There were two doctors when I came here. At times there have been three. But now that I have an automobile I can readily cover the region.

But the strange part of it is that I have fewer calls to make on the same people. The fact is that the automobile and the telephone have *set people's minds at rest*. They don't send for me in the middle of the night the way they used to. If it is

only a slight matter they wait until morning. If a little more serious, they telephone. Only in emergencies do they ask me to come to the house at night. In the past they wanted me to come anyway, in case there might be critical developments; but now they know I can get there in no time if needed, and they do not worry.

As one glances around in this present age, one finds that Ponce de Leon was perhaps not so foolish after all. Grandmothers refuse to sit by the fireside.

Men take pride in being vigorous and active until the final roll call.

This is a subject which deals with habits, customs, family life and the temperament of a people. It cannot be carefully measured with calipers. The automobile, in short, is a participant in, to some degree a creator of, this travel-eager country, this modern spirit desirous of movement and adventure, which is typical of health and youth.

The Automobile and the Pioneer

By WILLIAM JOSEPH SHOWALTER, S.C.D.

Assistant Editor, *National Geographic Magazine*

THE automobile has extended, to a striking degree, the territories over which civilized man holds dominion.

One needs only recall the work of the French in establishing motor routes over hitherto uncrossed areas of the Sahara Desert, or the success of Dr. Roy Chapman Andrews in using automobiles in exploring the heart of Inner Mongolia, to realize the truth of that statement.

The pictures Dr. Andrews brought back with him afford convincing evidence that the modern American motor car is built with a factor of safety, large enough to make it a dependable vehicle of transportation where even the idea of good roads has never penetrated. I recall seeing his trucks pushing bravely on through mud and mire, over stony stretches of roadless desert, and across gullies and washes, until I had to marvel that any motor vehicle could come through in running order.

I little wondered, as I watched the pictures on the screen, that the insurance companies in Peking had refused to write policies on any car venturing into such hazardous regions and upon

such trying tasks. But no terrain that stretched before them and no obstacle in their pathway was able to turn them aside or keep them from returning safely, and in good running order, to Peking. Indeed, they came through their season's grueling grind in such fine shape that they were sold for 75 per cent of their cost price, as second-hand machines, much to the surprise and somewhat to the discomfiture of those who had refused to write insurance on them.

When we remember that there are probably a dozen makes of automobiles of low- and middle-price range, which would have given the same sort of account of themselves, we begin to appreciate the sturdiness and endurance of American-built cars, and their ability to open up well-nigh inaccessible regions to modern travel.

PLEASURE IN MOTORING?

During the past summer I traveled in the West. My journeyings by rail gave me a somewhat extensive acquaintance with the Apache Trail, the Santa Fe Trail, the Overland Trail and

other highways across the Great Plains, the Great Basin, and our own western deserts.

The car-window panorama at every turn revealed motor tourists, both westbound and eastbound, with their cars converted into veritable carryalls for human beings, baggage and camp equipment.

From the vantage point I occupied, their trip across plains and deserts seemed everything I would want to avoid. Rough, unimproved roads, hot deserts, mud to contend with here, and dust to battle against there, I could not see how a single tourist, packed, as they were, like sardines in a box, amid a jumble of suit-cases, cooking utensils and camp impedimenta, could extract an iota of pleasure from traveling in such style.

Water had to be carried for radiators that seemed to be perennially hot; vast stretches of burning sands had to be crossed where life had been scorched and parched out of everything but the hardiest of desert fauna and flora; service stations were as scarce as the proverbial hen's teeth.

No wonder I thanked my stars that I was in a comfortable limited train.

But when I met these same folk in the hotels where they broke their journeys, what a happy, exuberant, brimming-over-with-health lot they were! Not one of them with whom I talked failed to wax enthusiastic over the joys of overland touring. And so many of them had made similar trips before and were planning others for the future that I began to realize that perhaps it was their turn to pity me for my effete love of ease.

At the Grand Canyon, at Los Angeles, at San Francisco, at Salt Lake City—everywhere I went there were veritable hordes of motorists—people from well-nigh every state, and every one of them delighted with his or her ex-

periences. Small children, schoolboys, and schoolgirls, families, women without men in their parties; but no, not one among them disheartened with the toils of the road behind them or awed by the miles ahead of them!

Passing down over the El Paso Southwestern from Tucumcari to Vaughn, our road ran parallel to the Apache Trail. The conductor of our train was a typical railroad man of the bounding Southwest. He had rail-roaded extensively in Mexico before the abdication of Porfirio Diaz, and had settled down to railroading in the Panhandle. Sitting in the chair beside me in the club car, he commented on the number of westbound motorists from the East that late in the season.

He, too, had the car-window viewpoint on crossing the deserts in a motor car.

"None of that for me," he remarked with a wry smile, between puffs of his store-bought corn-cob pipe. "I had business in California last spring. Going there by rail, I bought a second-hand Ford for \$100, traveled 5,000 miles in it over the fine roads of the Pacific coast, and then sold it for \$75."

CONQUERING THE DESERTS

Whatever one's attitude toward traveling by railroad or highroad, where they parallel one another across desert and plain, the fact remains that in the hands of the pioneer, the automobile is remaking the geography and remodeling the life of many areas either very remote or practically inaccessible.

The expedition of Dr. Andrews into Inner Mongolia has brought Urga within four days' travel by motor car from Kalgan, where formerly it was twenty-odd days by camel or thirty-odd by bullock cart. Cars are now being dispatched each way between the two cities on the 5th, 15th, 19th, 20th, 25th and 30th of each month, reaching

their destinations in four days. Passengers are allowed thirty pounds of baggage, and a fare of \$120 is charged. Intermediate stations where food and lodging are obtainable have been provided. In this way the Gobi Desert is beginning to see a motorized version of the old stagecoach days of our own pre-railroad and Wild West days.

Motor trucks are also being considered for the Kalgan-Urga route and it is expected that before many months freight will be moved by fleets of them, and the old-time bullock carts and camel trains will pass into the discard.

The distance between Kalgan and Urga is 550 miles. Except for about fifteen miles in the Kalgan Pass, where the road climbs to the table-land at Hanaba, and another stretch of gravelly waste land across a spur of the Gobi Desert, which may be passed in about five hours, the going is over grazing lands not greatly different from the plains of western Kansas. Altogether the country is adapted to automobiles in dry weather, which prevails most of the year, the only rain coming in thunderstorms and showers in the summer. For four months during the winter the temperature is around zero or below, and for two months more, seldom rises above freezing.

In the Sahara the caterpillar tractor has met the camel in his own private preserves and defeated him, bringing Timbuktu within twenty days of Tuggurt, instead of the ninety days of the camel train.

FROM TUGGURT TO TIMBUKTU

The railhead in southern Algeria is at Tuggurt, a sand-locked terminus on the northern edge of the great sea of sand. About a year ago the French decided to send an expedition from that point to Timbuktu with tractors substituting for camels. Preliminary parties were sent a distance of some 625 miles into

the desert, from the two termini of the route, to establish supply depots. Once these depots were laid down, a stretch of 750 miles lay between them.

Starting from Tuggurt, the expedition headed for Wargla, in the heart of a famous, date-growing district. This 125-mile stretch was covered without difficulty. Thence the expedition moved on, following the dried-up course of the Wadi Mia to Fort Hassi Inifel, some 250 miles southward. Here the route came to the chain of sand hills known as the Great Eastern Erg, which stretches from Morocco to Tripoli, almost without interruption.

Beyond Inifel the sandy plain, strewn with bluish and gilded dunes, gives way to a desolate, gloomy country, full of sharp rocks and cut by deep crevasses, and known as the Tademait. Still further on came the Ain El Gettara Pass and the Tidikelt Plain, covered with boulders, and menaced by marauding fanatics. Thence the expedition moved on to In-Salah, a great oasis and caravan center, and later reached the Hoggar country, the real center of the Sahara. Reaching the Hoggar country through a pass in the blue mountains of Muydir, the expedition moved on and came to the Tanesruft, an almost waterless region of sandstorms, boulders, and rocky, dry valleys. Thence pushing forward to Kidal and on to Burem and the Niger, Timbuktu was reached, only twenty days out from the Mediterranean railhead.

For nearly a hundred years France has been striving to effect a commercial and political liaison between her colonies on the Mediterranean Sea and those along the Niger River. At last motor transportation has broken down the desert barrier and pointed the way to the realization of a century-long ambition.

At many places en route, bleaching bones and hyena-torn bodies of dead

camels were silent witnesses to the fact that the caterpillar tractor could brave climatic conditions before which even the sturdy "ships of the desert" had gone down.

A ROUND-THE-WORLD MOTOR CARAVAN

One may gather an idea of how far the motor car has gone toward bringing all lands under its dominion by studying the plans of Robert R. Reynolds for a round-the-world motor caravan. He proposes to organize a world sight-seeing tour with a thousand people.

Embarking in a specially chartered freighter at New York, the caravan would land at Casablanca, Africa. Thence it would make its way through Morocco, Tunis, Tripoli, Algeria and Egypt, crossing to Asia over the Isthmus of Suez, and going through Palestine, Persia and Arabia to Bagdad and Basra. There the ship would take the caravan aboard for India, which would be crossed by motor. Embarking again, the caravan would be landed in Java, which would be toured from end to end, after which Siam and Indo-China would be traversed, with a tiger hunt and an elephant hunt as a part of the program.

Embarking at Saigon, Indo-China, the expedition would call at various Chinese and Japanese ports, touring inland from them, and then turning the freighter's prow toward Vancouver. Landing there, a transcontinental tour through parts of Canada and the United States would constitute the concluding leg of the vast swing around the circle of the earth's surface. It is estimated that for every 100 tourists twenty trucks would be required, and that about eight months would be necessary to make the trip.

HUMANIZING THE LONELY PLACES

In our own country the automobile means perhaps more to the pioneer who

pushes on beyond the horizon of occupied territory than to any other individual. Go with me out over the plains of the region west of Bismarck, North Dakota and Dodge City, Kansas and east of the Sierras and the Cascade Range, and you will see tens of thousands of families living in an isolation so remote that the horse and the burro cannot conquer it. But the automobile makes a horsedrawn journey of a week a matter of going one day and coming back the next.

As I have ridden through great stretches of desert and plain, with the houses so far apart that there was seldom more than one in any circuit of the horizon, and with the tiny villages so remote from one another that one grew lonesome between them, I have had brought home to me the vastness of the service the automobile renders such districts, by shortening up the open spaces and bringing families and communities within social and commercial range of one another.

IMPLEMENTS IN THE EMPIRE BUILDER'S HANDS

One afternoon I strolled down from the El Tovar, at the Grand Canyon, to the forest ranger station.

A fine, husky family, in a sturdy, middle-priced car, pulled up. The father alighted, went in, and began comparing the available maps of southwestern Utah with his field-made ones. It developed that he was a professor of engineering in a mid-western university.

"There isn't a map of the section through which I came that correctly represents most of it," he remarked. "We wandered here and there and often were able to make no more than fifteen miles a day, but we have plotted the route over which we came, and every one of us is in finer physical condition because we really got back to

Nature. Furthermore, we will give the world a better picture of motoring facilities in the region through which we came."

A great many remote regions are thus being mapped in the Rockies and westward to California. Scores of places filled with natural wonders and splendid scenery, such as the great natural bridges, splendid petrified forests and fine caverns, are being brought within the range of the vacationist through the Twentieth Century pioneer and his automobile. Places that within the memory of men, who have not yet passed over the hiltop of life, have been transformed from deserts into lands flowing with milk and honey.

Today there are thousands of square miles of territory that await a similar transformation, and, as America grows in population, the automobile and the motor truck will be the prime implements in the empire builder's hands.

Grand Junction, Colorado, is one of the most magnificent oases in the world, entirely man-made. Hundreds of sites of future Grand Junctions are lying around the West, awaiting only the time when the press of population will make their development necessary.

Irrigation will be imperative, but when we become land-hungry enough the lands will receive the water they need, and we will pay the price that demands.

But always and everywhere that man lives remote from his fellow man, and communities are remote from their nearest neighboring communities, the automobile and the motor truck will be the foremost agency, first in the pioneering, and then in the filling up of the interstices that shall knit communities together and bring new areas into production to meet the needs of an ever-expanding race.

Linking Up Railroad and Water Transportation

By DORSEY W. HYDE, JR.

Formerly with Packard Motor Car Company

THE object of this paper is to discuss the motor vehicle as a unit in the transportation system as distinct in character as the steamboat or the locomotive, and to emphasize its growing importance as a public utility or common carrier and the need of understanding it and providing for it as such. Automobiles for personal use, or used in connection with a private business not affecting the public at large, do not fall within the scope of this discussion.

That "there has been too little recognition of the fact that in reality motor truck transportation is, or should be, a great public service, and that it is a common carrier as much as a rail-

road or steamship line,"¹ is sufficiently demonstrated by some ill-considered public regulation on the one hand and by some overenthusiastic commercial exploitation on the other. The state legislature which slows up industrial development by unduly restricting the motor vehicle is as derelict to public interest as the motor bus promoter whose aim is "to run the street railway company out of business."

THE FUNCTION OF TRANSPORTATION

It is perhaps unnecessary to stress the fact that business activity, as ex-

¹ "Motor Transportation of Merchandise and Passengers." Percival White, New York, 1923, page 2.

pressed by such words as commerce, trade, traffic, barter and exchange, implies the movement of articles from one place to another. In strict logic no business transaction is complete until the buyer has deposited with the seller the agreed-upon value equivalents and the seller has deposited the article sold *in a place designated by the buyer*.

The practice of shipping goods F. O. B. conflicts with our definition of the requirements of a business transaction. The adoption of this practice is significant: it illustrates the seller's desire to free himself from a part of his responsibility in the sales transaction. Why did he want to evade this responsibility? The answer to this question may throw some light upon recent shortcomings in our national system of transportation.

SOME ASPECTS OF TRANSPORTATION HISTORY

Preoccupation with major transportation problems is characteristic of modern transportation development. The needs of producing, manufacturing and distributing centers must first be met. It is natural, also, to become preoccupied with the one transportation unit best fitted to supply the principal need. During the canal-building era in Great Britain no one knew when to stop and if funds had held out England might have become a close second to Mars. Likewise with the locomotive; ill-considered line extensions came to be a matter for parliamentary consideration and after many years of co-operative effort, through a short lines railway association, the financial condition of these railways was still unsatisfactory.

The great task of financing and constructing the American railroad system dimmed our remembrance of the fading glories of the clipper ship era.

The result was the development of a railroad system of unprecedented size and efficiency, and the Baldwin Triplex locomotive took its stand beside Donald McKay's *Flying Cloud* or that proud clipper *The Sovereign of the Seas*.

In the pride of this achievement we should not forget that America also developed a short line or spur line railway problem and that manufacturers cut the Gordian knot of their transportation difficulties by adopting the practice of shipping goods F. O. B.

RESULTS OF PAST TRANSPORTATION DEVELOPMENT

All things considered the American achievement in transportation organization is unique. In a miraculously short space of time a great major transportation system was created to serve widely-scattered producing and distributing communities. This system was articulated to a considerable degree with existing ocean and inland water transportation facilities. The effect upon the agricultural and industrial development of the country was immediate. Rocky Mountain metals were made valuable through accessibility. Texas farm lands increased to 6 per cent of the total value of such land in the United States and Dr. Friday states: "It is obvious that no such values for this land could exist at points so far distant from the consuming center of the country without our present-day system of transportation."²

The advantages of this major transportation system to the larger business centers are well known. Converging networks of railroads pour their burdens of riches into the terminals of New York, Boston, Philadelphia, Balti-

² "The Place of Railway Transportation in Our Industrial Structure." Compiled by the National Transportation Institute's Research Council, David Friday, Director, February, 1924, page 7.

more, Chicago, San Francisco and other cities. Increases in property values and stimulated business activity followed in the wake of right-of-way construction and communities vied with each other to induce route modifications which would bring the railways to their doors.

The spread of commercial prosperity was not confined to the territories immediately served. As already pointed out, the increase in prosperity was general. No community, perhaps, could legitimately claim anything but advantage from the coming of the railroads. There were some, however, who claimed that advantages were disproportionate, thus working comparative injustice upon those regions less effectively supplied with railway service.

THE LOCAL TRANSPORTATION SITUATION TODAY

The war-time breakdown in short haul and L. C. L. railway shipping service, gave advance notice of the defects in our system of domestic distribution. Today, with the aid of congressional and other investigations, we are discovering that the cost of distributing commodities is out of all proportion to the costs of raw materials and fabrication. We have here, perhaps, one reason for the growth of the F. O. B. practice; certain it is, in any case, that weak spots in the transportation system are reflected in the index of the cost of living.

Business prosperity traceable to our efficient major transportation system is not without its defects, if there is failure to make provision for adequate minor or ultimate transportation from distributing centers to the point of final consumption. As pointed out at the commencement of this paper, a business transaction involves complete, not part way, transfer from seller to

buyer. Increased business prosperity brings an increase in manufactured products and these products must be effectively distributed. As the volume of freight and passenger traffic increases, the use of the transportation systems is intensified to a point where all defects become increasingly apparent.

The volume of trunk line freight and passenger movement today is such that our terminal facilities in major distributing centers are becoming hopelessly choked. Sluggishness in the last stages of distribution means harder living and less comfort in remote sections of the distribution area. Such sections become less desirable for business and residence purposes and the exodus to the city commences. The city, already overcrowded, grows to disproportionate size and starts upon the road to traffic congestion, fluctuating costs, bad housing and civic stagnation. It is evident, therefore, that our problem is to link up local transportation agencies to facilitate freight and passenger movement at terminals; to insure more prompt and economical distribution of persons and commodities throughout natural distributing areas; and finally, to make possible the progressive decentralization of urban population by bringing to remote sections the comforts and conveniences which heretofore have been the prerogatives of the city.

SOLUTION OF LOCAL TRANSPORTATION PROBLEM

It is evident that proper recognition has not been given to the dual nature of the national transportation problem—its major, or trunk line, functions, and its minor, or local distribution, functions. If major transportation is to be allocated to ocean and river boats and locomotive trains, it is equally essential that we divide up minor or local

transportation among short line railways, electric traction lines, and the motor and other trackless vehicles.

If we visualize this problem of localized distribution, we will find that the country may be divided into natural areas or regions for distribution purposes. Such regions are determined in part by the major transportation system, in part by topographical conditions, and in part by the facilities afforded by the present local transportation agencies. These natural regional areas for distribution, it should be pointed out, are already recognized in the structure of the sales organizations which have been developed by large manufacturing concerns. Our problem, then, is to determine how available transportation mediums may be best organized in such regional distribution areas so that the final step may be taken in perfecting a national distributing system of maximum efficiency.

The first step, obviously, is to select appropriate transportation mediums and to determine what part of the task each should perform. Unfortunately our knowledge of the relative spheres of such local transportation units as the trolley, the bus, the motor truck and the horse-drawn vehicle, is incomplete. As the result of a recent study of this problem, a special committee representing the various transportation interests involved, concluded that

there is . . . a zone, flanked on one side by an area of long haul which should belong primarily to the steam and electric railroads and waterways, and on the other by the short-haul zone in which . . . motor transport should play a larger part. The economic limits of the zones vary greatly according to the commodities and the local conditions. Where good highways exist it appears that for distances up to 10 miles in some instances and to 25 miles in others the motor truck has the advantage over the steam or electric rail-

road, and that beyond 50 miles under certain conditions and 150 miles in others the railroad should generally have the field. This leaves a competitive zone with a lower limit of 10 to 25 miles and an upper limit ranging from 50 to 150 miles and more in special cases. Within this zone each form of transportation has its advantages to the shipper who should be free to make his choice with due regard to cost, time of transit, reliability of service and other considerations.³

At the National Transportation Conference held in Washington last January, representatives of commerce, industry, mining, agriculture, labor, insurance, finance and transportation considered the report of the above-mentioned committee. After full discussion the conference expressed its opinion that:

The motor vehicle has proved its unquestionable value in our economic system, having greatly extended the farmer's field of operation, brought much additional land under cultivation and new sources of raw materials within economic reach of markets, quickened the industrial life and facilitated the processes of distribution.⁴

The important part which the motor vehicle plays in local distribution areas becomes more evident every day. In the field of urban transportation we are coming to realize that it is useless to multiply the size and number of railway freight and passenger terminals if the carrying surface of city streets is taxed to capacity. Mr. Hoover has pointed out that

the expansion of terminal facilities at our larger centers in the next twenty years will

³ Report of Special Committee IV, appointed by the President of the Chamber of Commerce of the United States, on "Relation of Highways and Motor Transport to Other Transportation Agencies," page 21. Washington, D. C., November 2, 1923.

⁴ Report of the Transportation Conference called by the Chamber of Commerce of the United States, January, 1924, Washington, D. C. page 10.

be required to a degree that seems almost hopeless with the present methods of terminal distribution and collection. Nor is the problem one solely of increased trackage and shed facilities. It is a problem that affects congestion in the streets and ramifies in a hundred directions in our municipal life.⁵

In Mr. Hoover's opinion real improvement may result from the application of motor truck service to facilitate terminal traffic movement in large urban communities, and indication has already been given of the extensive field for motor transportation in sub-urban or regional distribution areas.

In the light of developments such as the above is it too much to claim that the time has come to place the motor vehicle in its rightful position along with the electric trolley, the Baldwin locomotive, and Donald McKay's beautiful clippers, as the fourth great American achievement in the perfecting of modern transportation mediums?

THE SCIENCE OF AUTOMOTIVE TRANSPORTATION ENGINEERING

The rapid growth of automotive transportation has resulted in the creation of a new branch of engineering science frequently referred to as automotive transportation engineering. The principles of this new profession have already been formulated by S. V. Norton, F. Van Z. Lane, Percival White and others in this country and by J. Phillimore in England.⁶ Credit

⁵ Address of Hon. Herbert Hoover . . . at the Transportation Conference called by the Chamber of Commerce of the United States, Washington, D. C., January 9, 1924, page 6. Compare L. F. Loree's figures as to time freight cars remain in terminals as given in his recent book on "Railroad Freight Transportation," page 264.

⁶ See "The Motor Truck as an aid to Business Profits," S. V. Norton, Chicago, 1918; "Motor Truck Transportation, the Principles Governing its Success," F. Van Z. Lane, New York, 1921; "Motor Transportation of Merchandise and

for the accumulation of valuable cost and engineering data is due to several of the leading American motor vehicle manufacturers, among which may be mentioned the Packard, Pierce-Arrow, White, Mack and Autocar companies. Automotive transportation engineering has been defined as the science of moving persons and things from place to place over public highways in such fashion as to entail a minimum of expense and a maximum of dispatch, safety and comfort.

The task of the automotive transportation engineer is to apply his special knowledge in solving particular haulage problems. Faced with a given task of transporting certain units of bulk and weight, he must study the motor units at his command and select those best qualified for the task. His final choice will be influenced by such factors as the nature and amount of goods to be hauled, length of haul, number of stops, loading and unloading conditions, road surfaces and grades, etc. These facts are then considered in relation to four transportation principles, enumerated by the late S. S. Merithew as follows:

(1) Other things being equal *the cost per day* varies as the daily mileage the truck is operated. The cost per day should increase as the daily mileage increases.

(2) Other things being equal *the cost per mile* varies as the daily mileage the truck is operated. The mileage cost should decrease as the daily mileage increases.

(3) Other things being equal, *the cost per unit* (for example, ton) will depend on the truck capacity and the distance hauled.

(4) Other things being equal *the cost per unit-mile* (for example, ton-mile) will depend on the truck capacity and the daily mileage traveled.

The transportation engineer applies these principles to the facts of a par-

Passengers," Percival White, New York, 1923; "Motor Transport for Commercial Purposes," J. Phillimore, London, 1920.

ticular case to determine the truck capacity best suited to the job. When this is known he proceeds to equip the units chosen to meet operating conditions, and these latter may also be modified by the construction of loading platforms, carrier devices, and the like.

An example typical of this procedure is given in the account by an automotive transportation engineer of how he solved the haulage problem of a certain mining company:

After analyzing the situation, I found that they were paying 80 cents per ton for the leased motor truck, and about 65 cents per ton for their own teams. I informed Mr. ——— that they could haul the ore for less money with ——— trucks, but they would have to make the following changes. First, they would have to arrange for dumping or loading the ore from hoppers into the truck; also they would have to have special bodies built for the truck . . . (and) make arrangements at their plant for unloading trucks in less time. This, I showed them, could be done by specially constructed bodies. I also demonstrated to them that the trucks could be operated with two trailers to each truck, the haul being down a $2\frac{1}{2}$ per cent grade from the mine to the plant, (and) the truck having no work to do practically, except to act as guide or pilot for the trailers. The truck, of course, having plenty of power to pull the trailers back from the plant to the mine . . . We finally got the ——— company to order one six-ton truck . . . We built a special body that would carry a little over seven tons. We also got them to buy a six-ton trailer to operate with the truck. *With this outfit, they were able to cut their hauling costs down to about 35 cents per ton.* I later got them to place a second order for another six-ton truck and trailer on the strength of the performance of the first six-ton truck and trailer. We are at this time figuring with them on their third outfit.

THE PUBLIC ANGLE IN AUTOMOTIVE TRANSPORTATION ENGINEERING

Although there is increasing use of motor vehicles in public or semipublic

service, such as municipal and school bus lines and interurban express service, thus far the applications of automotive transportation engineering have been largely confined to the solution of commercial and industrial haulage problems. More recently one of the largest American cities has retained a prominent automotive transportation engineer so that the benefits of the new science may accrue to the public interest. In general, however, scientific planning is noticeably absent in the efforts which have been made to organize and co-ordinate urban and suburban systems of transportation.

Because of this lack of intelligent planning, the forces which have made for urban centralization have reached the peak of possible congestion. Referring to "industry's escape from congestion," Graham Romeyn Taylor pointed out that "when industry moves out from the city it is seeking economic advantage,"⁷ and John Ihlder has emphasized the point that "industrial decentralization also means lessened waste in transportation" because of benefits to be derived from increasingly effective automotive transportation service.⁸

The need for the large-scale application of automotive transportation engineering in regional distributing areas daily becomes more imperative. However, the way in which this may be effected is not clear. Under our present governmental organization we have local authorities concerned with street construction and street planning and lay-out, but attention to the regulation of street use until recently has been largely restricted to the one controlling

⁷ "Satellite Cities," Graham R. Taylor, New York, 1915.

⁸ "A Standard of Community Excellence," John Ihlder, 1924. See also his paper "Regulating the Automobile When Standing," 1923. Both issued by the Chamber of Commerce of the United States, Washington, D. C.

aspect, the prevention of accidents. Even if our local efforts at traffic regulation were extended to include greater attention to the organization and regulation of automotive transportation, the value of such effort would be questionable unless some way were found to include suburban districts within the planning area. There is a decided movement for the creation of metropolitan planning areas with centralized jurisdiction along the lines of the Boston metropolitan utility organizations, but this movement thus far has been without result.

In addition to the planning and organization of certain public aspects of transportation service, provision must be made for the enforcement of legal regulations. It has been urged that local motor transportation systems be made subject to regulation by state public service commissions. In distributing areas of major population size it is possible that this function will be delegated to some special branch such as the former Public Service Commission of the First District in New York City.

In accordance with American doctrine, the task of developing regional motor transportation systems is being left to private initiative. Efforts thus far have been complicated by the need for co-ordinating the new form of transportation with existing forms and we have witnessed some unfortunate clashes between the trolley and the passenger bus and the short-haul locomotive and the motor truck. Recent developments, however, indicate a growing recognition of the importance of viewing the problem as a whole and of co-operative effort by all transportation agencies in the development of a co-ordinated system in which each will play its proper part. Without doubt much may be accomplished by

far-sighted efforts of this kind, but it is necessary to remember that the experimental period is the period of greatest cost in invested capital and this burden necessarily tends to emphasize the need for profits rather than effective service.

It is generally agreed that public regulation of motor vehicle common carriers is in the interest of both parties concerned, provided that such regulation is based upon the principle of a fair return on capital investment. Such regulative measures as have been enacted in the past aim principally at the prevention of accidents or the securing of a tax or license income to defray the costs of road construction and maintenance. These measures, on the whole, have failed to meet requirements. The time has come for state and local legislative bodies to view the regulative problem as a whole. They must give more serious consideration in granting franchise concessions to motor transportation agencies and begin to think about the need for the development of standard freight tariffs and passenger transportation rates, of continuous and regular operating schedules, and of service extensions necessary to meet the requirements of the entire regional transportation area.

Automotive transportation has yet to reach its first quarter century of development and in its freight transportation aspect it is barely ten years of age. If its progress thus far is any indication, a serious effort to apply its facilities in accordance with modern engineering principles and public service requirements should result in a revolution in our methods of local and regional transportation. When this step is effected we may safely claim to have succeeded in the linking up of existing elements in our national transportation system.

The Automobile and Recreation

By M. H. JAMES

Publicity Director, Department of Highways, Commonwealth of Pennsylvania

THE writer of a popular song mourns in his chorus the departure of the covered wagon days, and for months singers and jazz orchestras bemoaned the passing of that period in American history. But there is infinitely more melody in the popular song than there was in the lives of those persons whose acquaintance with nature began in a covered wagon.

Other than food, clothing and the daily wage, no subject interests so many people as the automobile and the possibilities of its use. In Pennsylvania, for example, a million, one hundred thousand passenger vehicles were licensed in 1924. Roughly speaking, one person in every nine Pennsylvanians owns an automobile. The million, one hundred thousand car owners carry with them approximately half the population of Pennsylvania. That is the reason the State Highway Department has had to develop a touring information bureau, the radio broadcasting stations each week give information concerning road conditions, and the daily and weekly newspapers use prominently all material available as to the travelability of thoroughfares not only in Pennsylvania, but in the entire eastern section of the United States.

HOW AND WHERE AMERICANS PLAY

The American people have revamped their ideas on recreation since the automobile became popular. The average summer vacationist, for example, no longer reserves a hotel room in the mountains or on the coast for two weeks. The so-called "summer hotels" have had to change their methods.

The automobile tourist does not linger indefinitely in one place. He knows there are miles of good roads ahead of him and scores of places where enjoyment may be found. So the hotels which cater to recreationists are filled with one-nighters; and each morning finds the highways filled with travelers bound for new fields. The armchairs on the verandas are empty. The night clerk, who formerly found it possible to doze in his chair until six in the morning, must now be alert two hours previously, arousing that indefatigable portion of the motoring public which begins its journey at daybreak. And there are countless thousands of these 18-hour travelers—drivers who are in Philadelphia at dawn and in Boston soon after nightfall. On all main thoroughfares there are endless processions of cars bearing pleasure seekers; and the proprietors of inns and taverns, or hotels of high and low degree, are burning grey matter in the effort to stop these tourists and turn them into money.

The manufacturers, who at one time produced bronze letter openers, mustache cups and ornamental shoe buttoners for Christmas gifts, have changed their equipment so that now they produce in huge quantities the curios with which the vacationist's car is filled upon his return home. Quite as odd as the Indian novelties picked up where Indians never trod are the "shore dinners" served two hundred miles from the ocean.

Complaint is made by grave economists that the American public has gone mad in its desire to purchase rolling stock, rather than to own its home.

Those persons who naturally and consistently "view with alarm" see in this inclination of Americans nothing less than the fall of the Republic; and they say it is an indication that thrift has gone overboard. But if not so many persons are listening to the siren call of real estate dealers, or of the bankers who desire more deposit money to loan out at six per cent, the red corpuscles are more numerous in American blood and there are roses blooming in cheeks once palely gaunt. The family of Mr. E. P. Unum, camping over night in a fence corner, is horrified when it sees a baleful gleam from two saucerlike eyes across its roaring camp fire and the house cat of Farmer Brown is chagrined that its friendly advances were so speedily repulsed. The automobilist is getting his daily dozen touches of nature that make the whole world kin.

The Witch House, or the House of the Seven Gables in Salem, Washington's headquarters at Valley Forge, the stone marking the "high water mark of the Rebellion" at Gettysburg, the grave of General Braddock on the Old National Pike, the "painted post" not far from Corning, N. Y., the underground caverns of Luray, the clam-filled mud of the eastern shore of Maryland, the playground of the Poconos in Pennsylvania, the shrine of St. Anne, north of Quebec, the sites of the first settlements in Virginia—all are old familiar places to the recreationists who roll tirelessly through many marvelous miles of scenic splendors. Folks who ten years ago were unfamiliar with grass except as it grew in parks can now distinguish instantly the difference between poison ivy and the trumpet vine. Twenty years ago it is true the foundry worker who received \$2.40 a day owned a house and lot, but his acquaintance with the open country was confined to the stretch along the dusty road on which he took his Sunday afternoon

walk, or to the section through which he passed when on rare occasions he voyaged in the "steam cars." As he sat on his front porch in the early evening he saw the banker hurtling by behind a pair of sparking cobs. But there was little or no envy in him—he considered it part of the general scheme of things. Perhaps he dreamed that some day he might strike oil.

But it is not necessary to be Coal-oil Johnny Steele in order to enjoy the pleasures made possible by the automobile. The famous Steele, a country lad into whose lap poured untold wealth from the oil wells of Pithole City, with all his gold could not have purchased a summer afternoon in even a "flivver." Nor could Jay Gould, at whose touch the frontiers of financial kingdoms oscillated upon the map. But the world is indeed the oyster of Mr. E. P. Unum, whose week-end journeys begin at noon on Saturday and end in the twilight on Sunday. More powerful cars than his may pass him upon the highways, but they cannot surpass the enjoyment of him and his family. There may be more luxurious equipages along the road, but the scenic splendors are common property. There is always "a picture ahead" and they "kodak as they go."

Undoubtedly the automobile is responsible for the perfect highways now to be found in almost every section of the United States. But the perfect highways are responsible for the tremendous increase in the number of automobiles. This succession of events will continue indefinitely—more roads, more automobiles; more automobiles, more roads. Whether the states of the union are spending as much money for roads as they are for motor vehicles is a question for the highway economist. Growth of automobile ownership has widened municipal boundaries. The actual limits of a city are far beyond

the political city line. Over night the pasture land or the potato field is becoming suburban residence property. Those apostles of gloom who see the downfall of the Republic in the acquirement of motor vehicles by the populace overlook the steady expansion of municipalities. The automobile has made possible residence in what once were isolated sections. Cause and effect are again at work. The automobile enables city workers to live in the country. There is an incentive, therefore, for home ownership. There is a community interest, and a spirit of camaraderie, which did not exist ten or fifteen years ago. Demagogues may rant of classes and masses, but these once separated entities, so far as the automobile is concerned—and the pleasures and benefits derived from its use—vibrate upon the same plane. It is hard to convince Steve Popovich, or Antonio Branca, or plain John Smith that he is being ground into the dust by Capital when at will he may drive the same highways, view the same scenery and get quite as much enjoyment from his trip as the modern Midas.

Those who say the desire to own an automobile has discouraged or reduced thrift overlook the fact that this desire encourages industry. There is at least

the desire to save sufficient money with which to make car ownership possible. And the Old Doctors of Pessimism lose sight of the fact that ownership of a motor vehicle enables one to see what his fellowmen are doing; and there is incentive for better effort on his own part.

The greatness of the United States was simply taken for granted before the automobile enabled citizens to see for themselves the extent of this country. But now unhampered the average citizen drives from coast to coast, from Canadian to Mexican border. He sets up his camp trailer, or his pup tent, or he parks his car in the Adirondacks or the Alleghenies; or he finds him a sandy beach along the ocean in New Jersey; or he avails himself of a municipal camping site. He has had a full and enjoyable day. He has climbed mountains and floated down hill. He has passed through timberlands or across farming country or the wastelands left by careless toilers who took toll of nature. He has cooked his own meals beneath the sky, or he has found moderately priced subsistence at lunch stands along the way. And so at close of day, with an enjoyable tomorrow just ahead, he sinks into slumber with a satisfaction never equalled in the covered wagon days.

The Economic Future of the Automobile Industry

By CHARLES CLIFTON

President, National Automobile Chamber of Commerce

SOMEONE has wisely said that the most exceptional person imaginable would be the normal man. Each one of us is sufficiently human to vary at one point or another from the theoretically standardized pattern.

Business, dependent upon the human factor, is subject to similar variations. Accordingly, one cannot usually pre-

dict very closely what the buying habits of the public will be in any given year, or even what represents a normal volume of trade for any given industry.

It is possible, however, to outline certain basic conditions which underwrite the prosperity of a business. In the automobile industry one need but point to three or four factors.

PROSPERITY ASSURED AND WHY

The future market for automobiles in the United States is primarily assured by the fact that there are so many of them.

Occasionally one finds a writer who views with alarm the size of the registration figures, totalling 15,000,000 cars and trucks. But to those in the industry this enrollment is a guarantee of stability.

Not only will the fifteen million need to be replaced some day—a certain proportion every year—but it is also a sign that motor transportation is an integral part of our current civilization. A car to virtually every other family—this means distribution so intensive as to be practically indispensable. Rolling stock will be constantly renewed, as transportation demands require it.

This country, however, has not reached its maximum use of motor transportation, even in the sense of being dependant upon the gains in population and wealth. Progress in the improvement of our highways is being made at the rate of 35,000 to 40,000 miles per year. The Federal Aid Road System will comprise about 180,000 miles when completed, and the mileage of highways for general motor use will total about 800,000. The development of motor travel, as the highways become increasingly improved, will create added markets for cars and trucks.

Motor trucks, buses and taxicabs have registered a marked growth in the past few years. One hundred and thirty-four electric railways are operating bus lines, and 157 steam railroads are using motor vehicles for passenger and freight. This public service offers additional promise of demand for automotive products.

WORLD MARKETS

Abroad, the use of motor vehicles is just beginning. There are obstacles, to be sure. Poor roads, high taxes, tariff walls, and small per capita wealth are conditions which retard motor travel in many countries.

But conditions are changing. The Pan-American nations are holding a congress next year to map out a series of highway programs. In Europe there is a growing tendency to regard motor transportation as an essential feature in the development of the country, which should be encouraged rather than weighted down by many taxes.

In Mexico, the Far East, and the Antipodes motor cars and motor trucks are in active demand.

As only 17 per cent of the world's registration of motor vehicles is outside of the United States, it seems clear that the opportunities have hardly been touched upon.

The American makers do not, of course, expect to get all this foreign business. They recognize that there is future enough for all. But the United States products will have favorable reception everywhere, as they have today. Their powerful construction, and the low prices, due to the advantages of large scale production, place them in the forefront of world competition.

MOTOR PROBLEMS AND EFFORTS TO SOLVE

We recognize that motor transportation brings its problems. Traffic regulation, improved servicing of cars, financing—these are some of the matters to which the industry is devoting efforts toward improvement.

Fundamentally, conditions are sound. The public insists on eating,

on being housed, on being clothed, on moving from place to place. These are determined instincts which will be satisfied, and as long as the desire for personal rapid transportation persists, the automobile industry will have a sound and secure future.

Many merchants, who formerly opposed any parking restrictions, are now coming to a changed viewpoint. That there will be a constant tendency either to limit or to eliminate parking in all the great cities is practically a certainty.

The American Association of State Highway Officials is taking a far-seeing view of this phase of the work.

Its steady aim is the betterment and replacement of present highways where necessary, the banking and widening of curves, the reconstruction of low capacity narrow bridges, the flattening of boulders and widening of fills, and the extension of the line of sight at dangerous curves.

When we leave the strictly official regulation of traffic and enter into the subject of co-operation on part of independent agencies, new possibilities are developed.

Every community should have either

an individual or a commission responsible for its traffic, making studies of the volume and recommending methods for handling.

Many such agencies exist at this time. Some of those that are particularly important naturally include the following:

Existing organized motor clubs offer an admirable nucleus for the furtherance of street and highway safety programs, because of their widespread interest in the cause of highway safety, their means and opportunity for obtaining publicity and their community, state and national influence.

The Safe Drivers' Club is chiefly a medium for getting as many individual motorists as possible to take an active personal interest in public safety.

The act of joining the Safe Drivers' Club usually consists of signing a pledge card, receiving a windshield or other emblem and, generally, paying one dollar or other small sum as membership dues. Such dues, where paid, go to the community safety organization and just about pay the expenses of conducting the educational campaign for membership in the club.

Machinery and Its Effect upon the Workers in the Automotive Industry

By CHARLES REITTELL

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THE recent development of machinery in American industry has wrought definite changes in the nature of productive effort required of the workers. So pronounced have been the changes that they record definite influences upon the worker's wages, upon his mental actions and reactions, upon his physical being, and upon the whole social and industrial fabric of which he is a part.

Civilization stands before us proud of its achievements in the field of invention. Within a century the steam engine, the cotton gin, the typewriter, the rapid-fire gun, the telephone, the automobile, the turret lathe, the radio—all bear witness to a conquering of mankind of a blind nature.

But there is a backfire to all of this mechanical achievement. The workers by the millions in mills and factories are being shaped to meet the demands of these rigid machines. The requirements of dexterity, alertness, watchfulness, rhythmic and monotonous activities, coupled with a lessening of much of the older physical requirements, are registering results that portray a new type of worker in industry. Mankind has built this steel giant—the machine. He is finding the giant more powerful than its maker.

Literature contains much both in the way of appreciation and depreciation of our mechanical inheritance. Probably there is no bolder contrast in points of view than that shown in the following brief quotations: A most striking depreciation of machinery is expressed in George Moore's *The Confessions of a Young Man*.

The world is dying of machinery; that is the great disease; that is the plague that will sweep away and destroy civilization! Man will have to rise against it sooner or later . . . capital, unpaid labor, wage slavery and all the rest . . . stuff . . . Look at these plates; they were painted by machinery; they are abominable. Look at them! In old times plates were printed by the hand, and the supply was necessarily limited to the demand, and a china plate in which there was always something more or less pretty was turned out; but now thousands—millions of plates are made—more than we want, and there is a commercial crisis; the thing is inevitable. I say the great and reasonable revolution will be when mankind rises in revolt, and smashes the machinery and restores the handicrafts.

In contrast to this denouncement Oscar Wilde pictures the benefits of machinery in *The Soul of Man under Socialism*.

Under proper conditions machinery will serve men. There is no doubt at all that this is the future of machinery; and just as trees grow for the country gentleman while he is asleep, so, while Humanity will be amusing itself, or enjoying cultivated leisure—which, and not labor, is the aim of man—or making beautiful things or simply contemplating the world with admiration and delight, machinery will be doing all the unnecessary and unpleasant work. The fact is that civilization requires slaves. The Greeks were quite right there. Unless there are slaves to do the ugly, horrible, uninteresting work, culture and contemplation become almost impossible. Human slavery is wrong, insecure and demoralizing. On mechanical slavery, on the slavery of the machine, the future of the world depends.

In no industry has mechanical development been so rapid or so far reaching in its effects upon workers as in the automobile industry. Here is an absolutely new industry, free from all traditional methods, bringing into being a product which has the world as its market, and a product and a production that lends itself nicely to almost complete standardization. The outcome could be little else than a far reaching change upon those who do the work in this gigantic industry.

The aim of this paper is to list and briefly analyze the nature of the changes that the development of machinery has brought forth in the automobile and closely allied industries.

Before turning to the automobile industry proper, it should be noted that the antecedent industries of the automobile—the blast furnaces, the open hearths, the rolling mills and the foundries—have all passed through a definite revolution from hand to machine method during the last twenty-five years. The main results of this change in these industries regarding the worker are:

1. The elimination of physical labor formerly employed for the lifting and carrying and general handling of materials, product and equipment.

2. A great increase in the demand for machine operators and machine tenders whose chief requirements for successful operation are diligence, watchfulness, dexterity and such care as is necessary to direct moving machinery.

3. The effect upon wages. Wherever it has been possible to compare the old methods with the new, the results show a considerable higher, hourly rate for a larger percentage of the workers under machine operations than under hand methods. Also, in contrast to the great increase in production of a given plant that comes with the ma-

chine, the total payroll is quite often less under the mechanical methods. This condition is due to the exit by the hundreds of common labor operations, which work is performed now by mechanical appliances.

AUTOMOBILE MACHINE SHOPS AND ASSEMBLY PLANTS

The machine shops and assembly plants cover fairly accurately the operations that come within the narrower meaning of the term of the automobile industry. The analyses that follow cover these two divisions of the industry. It must be emphasized, however, that this is a somewhat limited use of the term—automobile industry. Indeed, if the reader will but refer to the August, 1924, number of *Industrial Management*, he will clearly see that the so-called antecedent plants of automobile manufacturing are becoming more and more an integral part of the automobile industry. Many ore mines, coal mines, coke plants, blast furnaces, open hearths, rolling mills, wire mills, etc., are devoted entirely to the manufacturing of the automobile, with a complete unification and co-ordination of all these plants from ore mines to automobile sales rooms.

The following constitute the more pronounced effects that machinery has made upon the workers in the industry.

THE COMING OF THE MACHINE TENDERS

The "all around machinist"—the machinist who has gone through years of apprenticeship and has finally learned his trade—finds a falling demand in the automobile industry. So complete has become the expertness of the machine itself, and so standardized have become the operations that little of experience and skill is demanded of the machine operators. Only a few days of training are needed to fit the

worker for many of the modern lathes, milling machines, drills, multiple punches, etc. This change makes more confusing than ever such terms as "skilled, semi-skilled and unskilled workers." In lieu of unskilled, semi-skilled and skilled there now exist *the tenders* who operate machines, *the technical force* who design, plan, schedule, route and cost the work, *the clerks, inspectors and foremen* who record all the miscellaneous activities of the shop, check the quality and quantity of production and who keep watch on the flow of material.

The ability to meet ("to hit") and maintain a constant machine pace; to be able to eliminate all waste and false motions; to follow without wavering printed instructions emanating from an unseen source lodged in some far off planning department—these constitute the requirements of a successful machine tender. The percentage that his actual production is below the standard production set for him is the measurement of the specific tender's inefficiency. And this percentage is more closely related to the conditions of his home life, his health, and his financial problems than to any academic classifications of skilled, semi-skilled or unskilled worker. As a superintendent in the Ford plant expressed it

To attain a normal day's production the worker is timed so as to keep up an energetic gait for eight hours a day—this can only be done when a well-regulated living is carried on by the worker in his home life. Worry, careless living, drunkenness and sickness must all be eliminated if the employe is to maintain his high grade production in this plant.

The following classification of the more important operations in the automobile industry is needed in order to obtain the proper perspective of machinery and its effects.

GROUP I. THE MACHINE TENDERS

This group embraces operators of boring mills, drill presses, lathes, milling machines, polishing machines, punch presses, screw machines, sewing machines, planers, shapers, sheet metal machines and a host of other miscellaneous machines. Roughly, it represents from 25 per cent to 40 per cent of the working force.

GROUP II. THE ASSEMBLERS

This group, although not quite as highly paid as the men in Group I, must in the performance of their work carry on operations that are much like those of Group I. By the use of mechanical appliances and tools, working on standardized product according to definite and standardized motions, they follow very closely the activities of machine tenders. There is, however, more physical work connected with the assembly operations. This group totals from 10 per cent to 15 per cent of the working force.

GROUP III. "SKILLED WORKERS"— THOSE WHO HAVE A TRADE

This group embodies machinists, blacksmiths, die sinkers, painters and varnishers. It includes somewhere between 5 per cent and 10 per cent of the workers.

GROUP IV. INSPECTORS AND TESTERS

These men test and inspect the work at different stages of the operations and also test the finished cars. They will total about 5 per cent of the working force.

GROUP V. THE HELPERS

The duty of this group is to assist those workers embodied in the above groups. It covers varnish rubbers, trim bench hands, machinist helpers, blacksmith helpers, etc. This group represents about 15 per cent of the total working force.

GROUP VI. THE LABORERS

This group embraces those generally classified as common laborers. They are the lowest paid workers and are called upon to do such carrying, handling and clean-up work as is generally required of such workers. They will total around 10 per cent to 15 per cent of the workers.

Over a period of eleven years, 1912-1923, Groups I and II, the machine tenders and the assemblers; have increased considerably in the percentage of total workers. Groups III and VI, the skilled workers and common laborers, have greatly fallen off in percentage of total workers.

In one of the most modern of plants over two hundred different kinds of mechanical devices are found carrying and conveying materials and product. This same plant reported that the percentage of trade skilled employes had been more than halved during the last ten years.

Here, then, we find skill or long experience at the top and brawn at the bottom both greatly lessened. A lessening which has meant on one side a transfer of skill from the trained workers into intricate and complex machines; and on the other side the brute force of physical labor transferred into the powerful and gigantic lifting, carrying and conveying ma-

chines. The natural concomitant of this is an increase in number and percentage of those who must operate or tend the machines and mechanical appliances.

MACHINERY AND WAGES

The important development taking place in the automobile industry within the last twenty years and briefly suggested above, is:

- (a) The growth and development of automatic machines.
- (b) The growth of machinery for handling and conveying material and product.

This explains the entrée of machine tenders, assemblers and the corresponding displacement of both skill and common labor types. Changes in wages naturally are a part of changes in operations such as the above.

The following table gives the average hourly earnings of the different groups.

GROUP CLASSIFICATION OF WORKERS AND AVERAGE HOURLY EARNINGS¹
(Male Employes only)

GROUP NUMBER	TYPE OF OCCUPATION	NUMBER OF REPRESENTATIVE ESTABLISHMENTS	NUMBER OF WORKERS	AVERAGE HOURLY WAGE RATE	INCREASING OR DECREASING PROPORTION OF WORKING FORCE
I.	Machine tenders	39	12,332	.68	Increasing
II	Assemblers	40	4,681	.66	Increasing
III	Skilled workers (trades)	34	2,360	.84	Decreasing
IV	Inspectors and testers	31	4,048	.61	No conclusive data
V	Helpers	23	658	.56	No conclusive data
VI	Laborers	24	2,307	.46	Decreasing

¹ *Wages and Hours of Labor in the Automobile Industry*, Bull. 348, U. S. Bur. Lab. Stat. Pub., Oct. 1923.

It should be noted that Groups III and VI represent the highest and lowest paid groups respectively and that Groups I and II are between these extremes. Also consider that Groups I and II are increasing in proportion to total working force, while Groups III and VI are decreasing. Therefore we can with fairness state that *the development of automatic and handling machinery has tended to level wages* by eliminating the high and low wage groups and increasing those who represent a middle grouping.

By referring to Bulletin 265, U. S. Bureau of Labor Statistics May, 1920, the same general tendency can be seen from an analysis of wages data in that volume.

Approbation from fellow-workers and self-aggrandisement are denied the workers because of automatic machines and standardized operations. This constitutes the real bug-bear of the whole machine industry. The regular, rhythmic stride of the machine absolutely precludes the worker from showing off his individual ability in any definite field of activity. Automatic machines put padlocks on self-expression. The work of a modern machine-tender leaves nothing tangible at the end of the day's work to which he can point with pride and say "I did that—it is a result of my own skill and my own effort."

Practically all parts of the product have been so specialized in operations that no definite, tangible object can be shown as embodying the work of a specific individual. Man no more marvels at the nature of the labor effort expended in the automotive industry. He stands dumbfounded, however, before the complexity and intricacy of the machines. The author has guided hundreds of students through automobile plants. What interests them is the marvelous automatic ma-

chine. The labor effort scarcely arouses their attention. The words of Mr. Dexter Kimball find application in the modern automobile plant:

Automatic machines show a transfer of thought, skill or intelligence from person to machine. These principles of transfer of skill and transfer of thought lie at the bottom of modern industrial methods.

In contrast to the machine-tenders we notice the hand workers—men working at their trades—do gain an appreciation. The artisan is looked up to and admired by those who watch him and by his helpers and apprentices. The die makers, the hammermen, the painters doing the higher grade of work, the older type of machinists seldom fail to have their work commented upon. These workers carry a proud air of knowing all the "ins and outs" of their trade. With great pride a machinist showed me two steel blocks smoothed by hand tools to such an exactness that by cohesion one block lifted the other.

Even a casual survey of these "trade" or "skilled" workers in industry will quickly acquaint anyone with these—shall we call them—*psychic rewards* of appreciation that come to this smaller and fast-vanishing group of workers. Being human, they like this sort of thing. It constitutes a definite return for labor effort expended. It means much in the way of developing and maintaining self-respect. This definite return to workers the complex, automatic machinery denies. And just so long as automatic machinery holds from the worker the opportunity for showing or expressing to some degree his own individuality and ability, then just so long may we expect him to be unconcerned about his job save for the money he can get out of it. Time studies, measured production and portrayed unit costs may keep the workers energetic and nervously "on their toes,"

but it is with great difficulty that the workers can be aroused to wholesome interest or spirit.

Changes in wage systems come with automatic machines. The development of a uniform, standard production turned out by machines, whose capacity per day is measurable, lays the basis for paying on a standard production basis. This differs from the ordinary piece work. The standard job or days work, which quite often is the machine's normal output, constitutes the base upon which all manner of premium, bonus and reward plans are built.

It is important to note that standard output under large scale production is the resultant uniformity that comes with automatic machinery, which, briefly stated, means that automatic machinery is the foundation for most of our successful time studies and methods of pay built upon such studies.

Automatic machinery has changed management method. By the introduction of machines whose operations and outputs have become uniform, standardized and automatic, the labor effort thereby is rendered measurable. In addition the growing speed with which metal can be cut and the machines operated, places emphasis upon the problem of quick dispatch of materials to and from the machines, and through the plant.

The first of these significant changes has resulted in placing upon management the responsibility of inaugurating measured production and pay plans for the workers. Once this is inaugurated the workers are controlled by a measured amount of work to be performed in a given time. Measured production tied up with adjustments in the pay envelope means that management needs little else to induce the worker to productive effort. The worker soon realizes that he is not only being measured but that this work is a link in a

long chain of operations, which link, if it does not function properly, is quickly noticed by management and by other workers.

The need of quick, material handling has led to many kinds of machinery for intra-plant transportation. As a result of this faster production, foremen are charged with the difficulties of having material flow smoothly and swiftly through the shop. But the measured production and the rapid flow of material through the plant call for the work of planning departments with their corp of technicians and clerks. This department plays an important part in the automobile plants as it originates the directions and instructions covering the productive operations.

THE ONWARD MARCH OF MACHINERY

He would be a rash and reckless prophet who would hold that the development of machinery in the automobile industry had reached its zenith. Automatic machinery so-called is not completely automatic until it has removed the necessity of all human effort. Probably the furthest development in this respect has been reached in transporting electric power, where sub-station operations are entirely automatic, save for occasional inspection, oiling or repairs. No labor effort is needed to operate. In the automotive industry the direct operations of cutting, bending and shaping were the first to be transferred to the automatic machine. This was followed by the further transfer of feeding by hand to mechanical feeding. Soon a further development took place by the use of conveyers, endless belts, etc. And lastly a fourth development whereby machines are being built in batteries so that many machines are under one man control.

Regardless as to the ultimate place

the machine method will take us—if there be an ultimate place—this important fact comes to our notice: Mechanical changes are taking place at an extraordinary rapid pace. The entire machine age comparatively speaking is indeed a very short one—not more than a hundred and fifty years and in America scarcely more than a hundred years. And in the last twenty years the growth of automatic machinery has made greater progress than it did in the preceding hundred years. Before this very sheet upon which I am writing reaches the reader in final printed page, many machines which are heralded now as the latest improved devices will have become obsolete and cast aside as junk.

When we realize this rapid pace of mechanical progress, then the effect upon the workers calls attention to Samuel Butler's words from *Erewhon*

Reflect upon the extraordinary advance which machines have made, and note how slowly the vegetable and animal kingdoms are advancing. The more highly organized machines are creatures not so much of yesterday as of the last five minutes, so to speak, in comparison with past time.

Quickly—over night as it were—the machine, gigantic, complex and intricate, has removed the need of muscle and brawn. As Fredrick W. Taylor puts it, "The Gorilla types are no more needed." Instead we have a greater demand for nervous and mental activities such as watchfulness, quick judgments, dexterity, guidance, ability and

lastly a nervous endurance to carry through dull, monotonous, fatiguing, rhythmic operations.

Beyond these changed conditions, however, rests the larger problem, who shall share the results of this great advance in machinery? Shall it be a Mr. Ford, a Mr. Durant, or a Mr. Jordan? Shall it be the consumer who constantly is buying a better car at a falling price? Or shall it be the workers who are being shaped physically and mentally by these machines? All of these interests perhaps in one way or another are now reaping some benefits from the progress of the industry. This much however seems clear and justifiable: That a first charge against the great productive increases that machinery has made possible are such costs as will fully and adequately reward the worker whose life is being rigidly shaped by this machinery. Shorter hours, higher wages, adequate insurance to cover death, accident, health and old age are preferential charges to be met before profits and lower prices are made available.

Higher standards of living, shorter hours of labor, a further development of art and a greater degree of leisure are possible and near at hand as fast as man enslaves the machine for his welfare.

But the success of the machine must not only be measured by the goods it creates. We must see to it that those who build and operate it share in a greater happiness because of this master giant now in our midst.

Financing the Sale of Automobiles

By J. A. ESTEY, PH.D.

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THE tremendous increase in the number of automobiles since the war has done more than strain our highway systems and congest our cities; it has brought in its train a financial problem of no little complexity and magnitude. Financing the orderly marketing of such a volume of costly commodities through a multitude of small dealers, often ill-supplied with capital, would in itself be an intricate task; but the burden has been greatly increased by the additional necessity of selling on the installment plan to the vast army of consumers. For a satisfactory means of supplying working capital to manufacturers and dealers who sell on the installment plan has always been difficult to devise, and has commonly necessitated the organization of a specialized type of financial institution, adapted to the needs of the business. The sale of pianos, agricultural implements, furniture and electrical appliances have become to a very large degree dependent upon the aid of the commercial credit and discount companies that supply the working capital of the dealers.

In the motor industry similar problems have led to a similar development, and the methods of credit and discount companies have been adapted and extended by the rapidly-growing institutions that have arisen to finance the distribution and sale of automobiles.

THE PROBLEM

Even a hasty survey of the working capital requirements of the dealer in cars discloses the fact that the retail car dealer not only needs more credit, but he needs it more intensely than the

average distributor of merchandise. In the first place, if the vast and expensive capital equipment of the manufacturer is to be profitably employed, the production of cars must be reasonably continuous. Unfortunately for this purpose, the sale of cars is subject to great and unavoidable seasonal fluctuations that are more serious than any correlated variations in the output of cars and that have only been partially reduced by the use of closed cars. Hence somebody must undertake to store the excess of cars during the slack season; and the dealer usually has to do it. For the manufacturers have no storage space for such a multitude of goods, and even if they had, they could not use it, since the cars must be distributed throughout the market before the seasonal demand emerges, if hopeless congestion is to be avoided. So that, as in the case of similar goods, such as agricultural implements, it is the dealer who must undertake the function of storage, and this calls for an amount of working capital that is usually large. The great increase in the number of car styles is making this working capital even larger.

In the second place, as motor cars have become cheaper, installment sales have come to cover the greater proportion of the field, and this heaps new financial burdens upon the dealer. Before the advent of the cheap and medium-priced car, the buyer was commonly a person of means who paid cash. He did not expect terms, and they were not offered. But the vast spread of motoring, the unprecedented output of small, cheap cars, the growing realization of the economy of cars

for business purposes, the great increase in the use of trucks and tractors; all these have put the automobile into the hands of people who, for various reasons, do not desire to pay cash. In some cases, the buyer has not the funds; in others, because he uses the car in his business, he prefers to pay for it out of the current earnings it doubtless will produce. So that the dealer, even when he has financed his purchases of cars, is confronted with the additional task of carrying the installment notes of the ultimate consumer. And, as in all installment business, this is the more difficult problem.

In the third place, when the dealer appeals to the bankers for financial aid, he commonly finds great difficulty in obtaining adequate accommodation. He finds that he is looked upon as not the best of credit-risks, and his business as one not well adapted to the ordinary routine of finance to be found in commercial banks. And it is a fact that banks are not equipped to finance the peculiar capital needs of automobile sales. The risks involved are not necessarily very great, but the business does not measure up to the ordinary standards of credit analysis. Many of the dealers do business on a very small capital of their own, despite their costly stock. They often want funds for longer periods than customary, and they want to pay back in installments, which are a nuisance to handle and necessitate a degree of supervision the banks are unwilling to give. The chattel security in the car they regard as subject to abnormally heavy depreciation with the possibility of additional loss in case of repossession. And, finally, the investigation in regard to the credit standing of the installment-plan customers is more arduous and more costly than that usually undertaken by banks.

THE AUTOMOBILE FINANCE COMPANY

Such being the situation of the dealer, it is evident that, in the absence of special financial facilities, the business of marketing cars—and indeed of producing them—would be sadly hampered.

Fortunately, the banking organization seems always to have had enough vitality to adapt itself to changing needs, and in this case, as in others, the demand for accommodation has elicited an adequate response. So we have the spectacle in the last few years of a great outburst of institutions dealing in automobile finance. Some of these were established credit companies that have reached out into the newer field. But many, many new auto credit institutions have been established, and a few have been set up by the producers of motor cars who saw therein a means of keeping open the channels of distribution for their rapidly increasing output. All of these model themselves more or less upon the familiar finance, discount or credit company that has operated for years in the field of installment sales and the discounting of receivables. And their particular rôle in the scheme of finance is to act as an intermediary between the commercial banks and a type of customer who does not have the business and cannot furnish the kind of security that bankers can heartily endorse.

The work of the auto-finance company is commonly divided into two parts: wholesale financing or aiding the dealer to buy cars; and retail financing, which enables him to sell them on the installment plan. The company not only advances funds to a dealer who, with a modest capital of his own, wishes to put a stock of cars on his floor, but when sales are made on credit and the dealer has to face the additional difficulty of awaiting partial payments,

the company finances him again for the interval covered by the installments. As probably 60 per cent to 70 per cent of all passenger cars and 90 per cent of all trucks and tractors are sold on credit, most dealers will require this double accommodation.

Many finance companies are prepared to offer either wholesale or retail aid. Some, particularly the numerous, small, local companies, limit themselves to the retail field, and merely advance on the installment notes of the ultimate buyer. Apparently no company specialises in wholesale finance only.

WHOLESALE FINANCING

In wholesale financing, advances are made to the dealer upon his promissory note or acceptance, fortified by the collateral security of the car. The amount of the advance averages about 66 per cent of the value of the car, though some run as high as 90 per cent, some as low as 50 per cent. Usually the percentage will be higher for passenger cars than for trucks, and for cars stored in a public warehouse than for cars kept on the dealer's floor. The loans run for various lengths of time, the most common being 60 or 90 days. For the additional protection of the finance company, the notes of the dealer are often indorsed or guaranteed by the manufacturer of the car. Sometimes the manufacturer agrees, in case the dealer defaults, to repurchase the car and pay all expenses. Many car makers are apparently willing to indorse in order to aid in the orderly marketing of cars and in keeping the channels clear for regular output. But this practice is not universal. Some finance companies do not or are not able to demand it. Some manufacturers—Ford, for example—will not do it in any case.

The physical collateral behind the

dealer's obligation is the car itself. When the car is placed in a public warehouse, the warehouse receipt is made out or indorsed to the finance company. If cars, on the other hand, are placed on the dealer's floor, the dealer may execute a chattel mortgage, or the car may be held under a lease agreement or conditional bill of sale, the particular security used depending largely on the state where business is done. In all cases ample provisions protect the lender against misuse of the security by the dealer—as for demonstration purposes—and immediate repayment of the loan is generally required in the event of the car being sold.

Just what will be the aggregate credit extended to the dealer will depend upon considerations such as rule in orthodox banking. Though the collateral in the cars, protected by ample provisions, might seem in itself to measure the total volume of advances, the integrity of the dealer must be taken into account. Fraud and deceit may still arise in the use of collateral security and, as in all banking, the credit statement of the dealer, checked by some investigation of his business reputation, plays a large part in determining his time of credit. This is true, even though the car is eminently saleable, and the dealer is backed by the indorsement of the manufacturer.

RETAIL FINANCING

Retail financing differs only in detail from wholesale. In this instance, the obligation arises out of the purchase of the car by the consumer. In the average plan, the buyer pays cash sums varying from 30 per cent to 50 per cent of the price of the car, and gives for the deferred balance a series of notes, or a note with a schedule of payments, calling for a certain number of monthly installments. Payments are spread over various periods of time ranging

from five to sixteen months. The notes of the purchaser are as a rule indorsed by the dealer, and it is upon them thus indorsed that the finance company makes its advances. The dealer is thus able to shift the burden of carrying his customers. He virtually gets cash for every sale, frees his capital for further uses, and, as the installments are usually paid directly to the finance company, is relieved of the burdensome details of supervision and collection.

As in wholesale financing, the finance company is protected by a lien upon the car which, as before, varies in form from state to state. In some states a chattel mortgage form is used and title passes to the purchaser of the car. In others, this is replaced by a conditional bill of sale or a lease agreement, whereby the title remains with the finance company and only passes to the buyer upon fulfillment of all the conditions stipulated in the contract. Cars, however, under this plan are being placed in actual service, and, being thus exposed to the ordinary accidents of use, necessitate additional provisions to meet the risks involved. The most notable of these is the requirement of insurance against theft, fire and collision, the cost of which is often included in the charges levied on the buyer. In some cases it is a separate charge the customer must meet, but it is always there, and often it adds to the profit of the lenders through the commission they obtain for every policy placed. The normal depreciation of the car is amply covered by the large initial payment and rapidly recurring installments. Indeed the security covering the unpaid advance rises continuously, relatively to the indebtedness.

But even with this excellent collateral security, credit must be granted with proper caution. Irresponsible people are not good credit-risks under

any circumstances; and to guard against the danger of excessive repossession all companies attempt to assess the credit standing of every buyer who makes time payments. Such statements as are demanded from the buyers are much less complicated than those used in commercial banking, but they do attempt to obtain valid information on bank accounts, property owned, free or encumbered, and the source of income from which payments on the car may reasonably be expected. Perhaps the information thus elicited is not as full as could be wished, but it is demanded, and indeed doubly demanded. For not only does the finance company make its customary investigation, but the dealer, in order to protect the indorsement he will be expected to add to the purchaser's note, is quite as much interested in a credit survey, and usually makes some investigation of his own, possibly through his local knowledge adding what the agents of the finance company may not be able to discover.

SOURCES OF FUNDS

The funds with which the finance company supplies the needs of the dealers come from various sources, as do those of any company. The initial funds are supplied by the proprietors of the company and various additions may be made to these as profits are turned back into the business. But the great bulk of their resources, three, four or five times their owned capital, is obtained by borrowing, and most of their borrowing is from the commercial banks. Their business brings into their possession large volumes of promissory notes, usually double-name paper, secured by merchandise collateral, that are highly negotiable when given the additional backing of indorsement, and their cash resources can be enormously augmented either by the

sale of these notes to banks, directly or through brokers, or by depositing them with a trustee, and issuing thereupon their own collateral trust notes to be marketed through the usual channels.

Smaller concerns rely heavily upon direct loans at banks, the amounts depending on their capital and the integrity of their directors and officers. But the larger concern tends to adopt more and more the practice of issuing collateral trust notes of short duration and in denominations of from \$500 to \$100,000. These are offered to banks at the rates for good commercial paper, or perhaps a little higher, and disposed of, usually, with little difficulty. The collateral itself carries the indorsement of the finance company, and usually shows a margin of 20 per cent, and the banks are inclined to regard the collateral trust notes issued thereon as a good investment. The rate, too, is usually attractive and the maturities of conveniently varying lengths, commonly 60, 90, and 120 days.

It is thus evident that the ultimate source of the working capital needed for the distribution of automobiles is very largely the commercial bank. Only it has been necessary to set up this intermediary organization of the finance company between the banks and a business they distrusted, to the end that a guarantee of respectability and fair credit-risk might be secured. For, after all, working capital requirements and short-time loans must inevitably be taken care of by the appropriate institutions therefor. And commercial banks have been drawn in because it is their own sphere of business and they could hardly keep aloof. It is only a question of devising the proper machinery. Banks may not be willing to lend railroads wherewith to buy equipment, but they will undoubtedly invest in equipment notes issued by a car trust. They may be loath to

finance the sale of live stock, but they may quite properly regard the obligations of the cattle-loan company as an admirable investment. Similarly, though the sale of automobiles on installments may not attract the immediate aid of banks, they have no objection to lending on the security afforded by the automobile finance company.

THE COST OF SERVICE

The automobile finance company is thus really an intermediary. It may be called a bank and be chartered, as some are, under state banking laws; but it is essentially a machinery for investigation, indorsement and guarantee, and for the pooling of many petty securities. And this is important to remember in judging of its value to society and of the costs of its services. For it has undertaken a job which may involve no little expense, and need a corresponding reward.

Indeed the expenses are not small. The investigation of the credit standing of a multitude of small business and non-business people, the handling of the chattel security, the scrutiny and supervision demanded by the method of repayment, in some cases the additional cost of insurance, in others the cost of foreclosure and repossession, constitute a considerable burden of expenses which the borrower must pay. Add to these the interest on the loan, and some compensation for the risks involved, and the charges must obviously rise higher than the customary levies of commercial banks. True, the risk in ordinary times is not excessive, for relatively few cars have to be repossessed—not more than 1 per cent of the total—and the percentage of overdue accounts ranges from 20 per cent down to as low as 1 per cent, depending on the company. Indeed, ordinarily the expense incurred is in maintaining

the machinery for avoiding loss rather than in the loss itself. Still the risk is there, and it may materialize sometimes with dangerous rapidity. Any considerable volume of repossession, such as would make sales difficult and render assets unrealizable, would be a serious matter. Such a calamity might happen to any badly managed company, particularly the small local company too eager for business and not sufficiently rigid in credit investigation. It might happen to all companies in general in a severe business depression when vast numbers of cars are sacrificed. What this means is fully illustrated by the difficulties of 1921-1922.

Keeping in mind this background of the finance company's costs, one might ask in conclusion what is the usual charge for their advances. On the average, they charge about 15 per cent on the funds outstanding. Whether it could be lower than this is conjectural, but it is claimed that 12 per cent is the lowest rate consistent with the making of profits. Many companies charge more than 15 per cent; some charge as high as 36 per cent under some circumstances. Often the rate is concealed by the peculiar methods of

repayment commonly adopted. When interest is charged for the whole time of the loan on every installment, no matter whether paid back in one month or in twelve, a nominal rate of 8 per cent or 9 per cent may work out at 15 per cent or 20 per cent in practice.

In short, the method is not cheap. Perhaps it cannot well be cheaper, all things considered; but the buyer of cars who can command money at any rate less than 15 per cent could afford to borrow and pay cash for his car. That more do not do so may be because they do not realize what the installment plan costs. But there will always be multitudes of buyers who for material or psychological reasons prefer time payments, and on their trade the finance company will continue to thrive. Certainly the enormous and increasing number of sales on credit would seem to prove that auto-finance companies are only responding to a lively and insistent demand. In any case, one must not only admire the ingenuity with which they have gone about to perfect their peculiar type of finance, but one must recognize that they have added one more permanent unit to our complicated financial organization.

Financing the Automobile

By HENRY G. HODGES, PH.D.

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FROM the figures obtained by an association of the larger automobile finance companies, allowing for an additional fair estimate of the business done by the unassociated companies, it seems reasonable to conclude that there were in the neighborhood of two million automobiles financed in this country last year. With an average financed amount of \$500, we secure a vision

basis of our particular phase of the subject when we realize that \$1,000,000,000 worth of retail financing was done by these companies in 1923. This amount is increased by approximately \$150,000,000 advanced to the automobile dealer. These loans to the dealer have much shorter maturities than the notes of the retail purchaser.

FINANCING THE DEALER

Automobiles are shipped by the manufacturers to the dealers, or to their large distributing agencies, with drafts attached to the bills of lading, through the local banks, which collect and remit to the manufacturers. If the dealer can finance himself or secure sufficient credit from his local banks, he does not deal with finance companies so far as his own purchases are concerned. If, however, his credit facilities are limited, as they often are, the dealer looks to the finance companies for assistance supplementary to that obtained from the banks. This is particularly true during the three winter months when his stock must be large if he is to be in position to make prompt deliveries to the spring and summer trade. The usual plan is to have the finance company advance from 75 per cent to 85 per cent of the dealer's cost of the automobile, and to take title to the automobile to secure the loan. The average charge for this accommodation is about $3\frac{1}{2}$ per cent to 4 per cent for three months, which charge includes the cost of fire and thrift insurance on the car. The policy is held by the finance company to protect its interest in the security. This plan enables the dealer to prepare for future business to an extent that the usual banking facilities will not provide. The automobile which secures this account is either left with the dealer as "bailee," for display purposes—the so-called "Floor Plan"—or is stored in a bonded warehouse in the name of the finance company.

THE RETAIL TIME SALE

In an even larger percentage of cases the retail buyer needs help in buying his car. This figure has been generally accepted as 70 per cent of the number of cars sold, and in the case of the

cheaper cars the average is much higher. When the amount of business was small the dealer could probably take care of his notes receivable through his bank. But as the business grew, these customer notes went far beyond the dealer's ability to discount. The finance company was called into existence by the insistent desire for an increased distribution. For this phase of the business the finance company supplies the dealer with all the necessary forms and instructions. The retail purchaser's note is made out directly to the finance company or to the dealer and assigned or assigned and endorsed by him to the benefit of the finance company which discounts the note. The retail buyer pays from one-third to one-half the selling price of the car. To the balance is added the finance company's charges. This total is divided into from six to twelve monthly payments, which are made direct to the finance company by the retail purchaser. Included in the charges are interest, service and insurance. The service charge covers the credit investigation and the cost of collection. These items are of the same general nature as those of a commercial banking transaction, but they are pursued more thoroughly and in a detail commensurate with the risk involved. The cost of collection is considerably more than is the case in the ordinary banking transaction. The investment is being paid for out of earnings; there are a number of monthly installments; the borrower often is a considerable distance from the lender; the lender has an insurable interest in the security and must become the active party in the event of an insurance adjustment. The insurance item depends on the plan of the finance company, but always includes fire, theft, transportation, and a fraudulent conversion bond. In many instances there is, in addition,

collision insurance against losses in excess of \$100.

In addition to these precautions against possible loss, at least two of the larger finance companies have insured themselves against loss on "repossessed" cars. This rate is fixed by private arrangement between the insurance company and the finance company, and is usually a flat charge per car. It is a foregone conclusion that the insurance company must charge the "probable loss" in addition to overhead and a profit. So it is generally understood that finance companies using this method of insurance do so to increase their own borrowing capacity. Large finance companies can carry this risk more cheaply than the insurance companies can carry it for them. The loss ratio on this class of business does not average more than $\frac{1}{2}$ per cent of the volume in carefully managed companies. In the smaller companies the loss ratio will have a much wider range. It will depend more directly on the caliber of the personnel, simply because the spread is smaller. In some of these smaller companies the loss ratio is as low as $\frac{1}{10}$ per cent, while in others it has forced liquidation.

THE FINANCE COMPANY

The popular conception of the finance company is coming more true to form every year, as a growing clientele "partake of its blessings." It has been viewed by many as a pawn-shop plan of unthrifty automobile purchasing. The picture includes a poor working man, buying something that he cannot afford, at the solicitation of a prevaricacious salesman, with an unscrupulous finance company in the background, ready to add disaster to an already impossible situation. The several elements in this picture must be subjected to softening tones to bring them to a fact basis, and produce the true picture of

blending interests in place of the contrasting selfishness of the other. As a matter of fact the business man, who can well afford the first cost and operating expense of a \$5,000 to \$8,000 car, seldom has the cash lying in bank to cover this purchase. He gives his promissory note to the dealer who has it discounted through the buyer's bank, or he has his own note discounted and pays the dealer with borrowed cash. Reductions on his note are in effect installment payments. Furthermore, these reductions are met with surplus income, the same general scheme carried out in the case of the popularly known "financed" car. The only difference is that the "business man" buyer has access to regular banking credits for this purchase, as well as his business transactions, while the "financed" buyer does not have such a commercial banking opportunity.

With these attitudes of the general public, the dealer, the time-payment automobile buyer and the banker, it may be realized, without any undue stretch of the imagination that such finance companies as operate successfully in this new field for a period of five years, let us say, have had many obstacles to overcome. With the survivors doing an increasing and successful business, we must look for the cause in some form of service not included in the casual conception of their function in our financial structure. We must admit that many companies have done and are doing considerable harm to an industry that sorely needs the best attention of capable minds, due to its infancy and size. A pertinent side-glance at the mortality of the finance companies is suggested in a quotation from the *Eastern Underwriter*, an insurance journal:

A list of finance companies was made up not long ago and they numbered 600. This paper asked an authority on this

subject how many of these would rank as permanent going concerns with a sound financial foundation. The answer was fifty.

ECONOMIC FUNCTIONS OF THE FINANCE COMPANY

It is distinctly a service that the finance company has to sell. This service, we will try to point out, maintains a nice balance among the manufacturer, the dealer, the bank and the ultimate consumer, in a system which would never have grown so rapidly, on such a firm basis, if it were not for the interposition of this service-adjuster. In the first place it is fair to assume that the manufacturer of automobiles would not be able to finance the dealer during the unseasonable selling period. If he did, he would be compelled to carry for three or four months an enormous stock of finished cars awaiting the dealer's spring demand, or he would have to ship to the dealer on open book account during this period. In either case the problem for the manufacturer would be the same, and one which he would not be able to cope with. It is certainly safe to say that no manufacturer could successfully solicit bank assistance to carry an unsold stock of finished cars, on a year-round production basis, for a period of four months. It is within recent memory that even the Ford Motor Company was credited with "dumping" its entire finished product on its dealers in a dull selling period, due to financial pressure. Finance companies all over the country relieved the dealers of the pressure caused by this dumping transfer of frozen credits.

The banks do not look with favor on automobile financing for the dealer, except as his known business ability or tangible assets warrant extension of a credit which is certainly limited. This would be the natural consequence in any new line when estimated by our

most conservative appraisers—the bankers. The very circumstances of the case created a need for some new credit medium, and the new finance companies supplied it. If they had not filled the need at this point, and the manufacturer found it impossible to carry the frozen assets of stored automobiles, there would be just one answer. Production would be kept down to meet the seasonable demand conditions, with the consequence that the price of the automobile to the consumer would be kept at the high price of five or ten years ago. Thus it was that the finance companies bridged the gap and made possible the continuous and increasing production of cars, which was responsible for their continually decreasing cost. The manufacturer can base his year's production on the estimates contained in his dealers' contracts, and spread that production evenly throughout the year. He can ship cars to his dealers as they are *made* and not as they are *sold* by the dealer. The finance companies absorb the credits which the manufacturers cannot carry.

In the same way the dealer is, in his turn, helped in the distribution of the credits demanded of him by the retail purchaser. The banks will not take the paper and the dealers cannot. By handling these retail credits in large groups the finance company not only relieves the dealer, but the loss ratio is distributed as between localities, dealers and makes of cars. In this phase of the work the finance company not only absorbs what would otherwise be a frozen credit in the hands of the dealer, but it performs another important service by the credit and collection facilities it brings to the assistance of the dealer. The banks are not prepared for this service from the standpoint of training or equipment. These new agencies made this work their

business, and necessity compelled a rapid and thorough training for those that would survive. Leaving out of account the economic desirability of the automobile purchase by the consumer, the note which is a part of the purchase is to be met from his current income. It therefore becomes important to get information on this phase of the note-giver. The finance company goes even beyond that. It considers the intrinsic value of the automobile itself, as well as the financial responsibility of the manufacturer and the dealer. All these items have a direct bearing on the value of the notes offered. Such a searching examination is not only a benefit to the finance company involved, but it is a benefit to the entire automobile industry, since it acts as a continual weeder of those on the margin, both among the manufacturers and the dealers. This process always operates to the benefit of the purchaser. He is more likely to have an automobile which will continue to be manufactured at a reasonable price, together with service from a dealer who will continue to be a dealer. Nothing about our present banking system would lead us to believe that we could expect from it such a co-ordinating benefit.

In addition to this service which goes *before*, there is the very important service which comes *after* the sale of the car. For this the dealer and the bank is even more unfitted than for those functions outlined in the preceding paragraph. The note usually covers ten or twelve monthly payments. This is a longer period than is customarily allowed on time paper by the banks. Again, the maker of this paper is not accustomed, usually, to banking practices, and the banker is not trained to collect this type of installment note. Such a situation potentializes a friction which will court loss to all concerned,

and particularly to the dealer. Delinquent payments must be followed up with machinelike punctuality, but with a peculiar adjustment of the human element that will protect the dealer's future business. Then if it becomes necessary to repossess the car securing the account, an organization to handle resales must be at the command of the financing agency. Here again the impossibility of the bank doing justice to the collection of this type of account suggests itself.

An excellent graphic illustration of the absorption of credits by the finance company is borrowed from an explanation of the subject by Emlen S. Hare.¹ See page 54.

REDISCOUNTS

It is not customary for the finance company to operate entirely on its own capital. In fact, when an efficient operating organization has been whipped into shape and has produced results, more business will flow to the company than it can usually take care of from its capital investment. At this point the organization is able to take on additional business with an increasing net return, if outside capital can be had at reasonable rates. The finance companies turn to the banks. There are probably numerous ways of obtaining this additional working capital, but three methods are commonly employed. The company may have its own corporation notes discounted directly, or it may sell its commercial paper, with varying maturities, through commercial paper houses which sell to banks. This type of commercial paper pays an attractive rate, and is considered a safe, temporary investment for the bank.

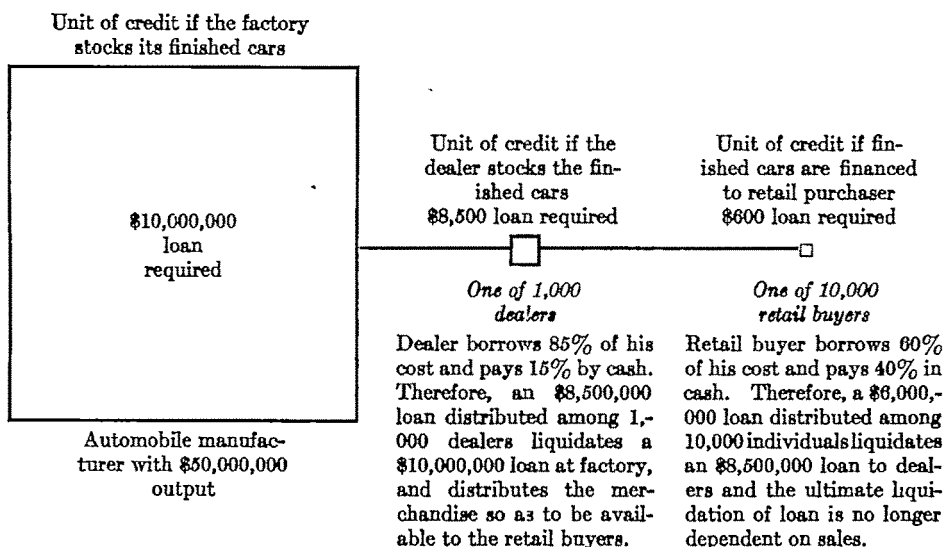
¹ Mr. Hare is Vice-President of Hare & Chase Inc., of Philadelphia, a company engaged in the financing of automobiles in a number of eastern and middle western cities.

HOW THE AUTOMOBILE FINANCE COMPANY LIQUIDATES CREDIT AND SAFEGUARDS IT BY
SPREADING THE RISK

The seasonal nature of automobile buying necessitates borrowing by automobile manufacturers or dealers, or both.

No attempt has been made to verify the figures used below as the object is merely to present a condition which must always exist to a greater or less degree.

The following illustration assumes that the automobile manufacturer with a yearly output of \$50,000,000 will require a loan of \$10,000,000 during the winter months.



As some 70% of the public desire to buy on time, any credits extended to manufacturers and dealers are hazardous and immature, unless a means of buying on time is afforded the public.

Some of this paper pays as high as 7 per cent.

Again, the finance company may give its corporation note secured by its retail-purchaser and dealer notes receivable. Often the bank is made trustee for these receivables, the finance company agreeing to substitute other notes of equal or larger amount, or cash, for any note taken from the trustee bank. These substitutions occur whenever any customer of the company liquidates an account. The bank may agree to advance the company from 50 per cent to 75 per cent of the total balance due on its trustee notes. In view of the fact that there is more than an ordinary service in this bank loan, a rate is fixed, through the carrying of cash balances by the company,

which will adequately compensate the bank for its loan and service.

The third method is for the finance company to arrange for a straight rediscount rate on its customer notes with a bank in the territory where these notes originate. In this case the original maker of the note is notified by the rediscounting bank to make payments to it direct. The bank thus acts as a *receiving* agency for the finance company. In its endorsement the finance company agrees that, in event of any installment not being paid on the day on which it is due, such installment shall be subtracted by the bank from the finance company's balance. Then the company must get on the job as the collecting agency—a detail which the bank is not prepared to

handle. In this case the bank renders a small item of the service included in the finance company's work, and is compensated accordingly. Sometimes there is a flat amount allowed the bank, in addition to the interest, on each note so handled. Another plan is to allow the bank a preferential rate—as high as 9 per cent—to cover interest charges and the cost of receiving the installments. The margin to the company in this transaction comes from the fact that, whereas the bank figures "simple interest" on each installment for the time it is to run, the company figures its interest rate on the face of the note. Under this plan the company benefits from the possible turn-over of the installments. From the margin it must get its operating expenses and profit.

It is evident, therefore, that the greater the volume of this rediscounting the company can arrange for, the smaller will be its overhead spread on each account handled, and the greater the net profit on its own capital investment. If the company was restricted to its own capital and had a theoretically perfect turn-over, that turn-over would occur twice each year. As a matter of fact the actual turn-over on its capital will be a little better than this, due to anticipations on some of its customer notes. But with the rediscounting methods here outlined, the turn-over on capital may be pushed to twenty or thirty times a year, or even more. One well-known company did a business of nearly \$33,000,000 in 1923 on a capital and surplus of \$1,600,000.

At this point it is interesting to note the percentage of delinquent payments on this type of installment note. In a well-managed company it will not be in excess of the delinquencies on mortgage interest payments. In actual practice the ratio is about the same. The collection of mortgage interest by trust companies and other agencies has been

of such long standing that age itself has lent a feeling of security as to the relative promptness of these interest payments. But ask the officer in charge of such collections at some institution with which you are familiar. Doesn't it speak well, therefore, for the methods practiced by the better finance companies, when we realize that their ratio of delinquent collections is not appreciably worse than mortgage interest payments? We must realize that age has given force to the idea of prompt, mortgage interest payments, which occur twice a year, while the installment notes, secured by the financed automobile, is a comparatively new thing and the payments must be made monthly.

CHARGES AND PROFITS

The average charge made by the finance company on a new car, in a transaction where the cash paid by the retail purchaser amounts to one-third of the selling price of the car, and the note is to run for one year, is from 9 per cent to 11 per cent of the amount financed. Second-hand cars take a higher rate. The note will call for the balance due the dealer, plus the finance charge and the cost of the insurance. The finance company also receives a broker's or agent's commission on the insurance. These company insurance accounts are considered sub-standard risks by the large insurance companies, on account of a number of features which may well be imagined. But from the standpoint of volume of business coming from a single source, and collection of premiums which is made monthly and promptly by the finance companies themselves, the account is a desirable one. Exclusive of this insurance item, the net profit of the finance company on the average car requiring \$500 is from \$5 to \$10, depending on the numerous conditions under

which it is operating. Some of the small companies operating in a local field with a small overhead, if they push their rediscounts, may reach the latter figure. There are so many factors entering into the final figure that its detailed treatment is impossible in this article. It must be understood, too, that these companies lay aside considerable surpluses to protect contingent losses and to increase their own credit facilities. When profits earned on these surpluses are credited with the profits earned on invested capital, the total bears, in the case of well-operated companies, a favorable ratio to the original capital.

As we have suggested that many of the companies are below standard, this low figure of \$5 is often shrunk to the other side of zero. The result is easily attainable if the dealers, the cars and the general credits are not watched closely. One authority suggests that there are about twenty makes of cars worthy of the finance company's operations, and the sooner the manufacturers and the dealers handling the balance are pushed beyond the margin by the lack of credit facilities, the better it will be for the automobile industry in particular and the public in general.

From the standpoint of profits alone the finance company must rather be contrasted than likened to a diamond mine. There are the average number of failures among these companies. Like most other business enterprises the reward is attractive to intelligent industry. Many attempts that lacked constant and far-sighted attention to details ended in disaster. This is true in both the large and the small companies. Several large losses may discourage the small company. The cost of stock promotion, large salaries to non-working entrepreneurs, heavy expenses of a centralized branch-office

system in distant cities, high rediscount and insurance rates, and a general inattention to the business by the holding "owners" of free, common stock in the larger companies, has furnished spicy liquidation reading for the financial page of our newspapers. These records in the hands of some bankers who do not understand the underlying plan, and hence cannot establish the proper relationship between cause and effect, have caused a mistrust of finance companies with a consequent high interest rate for rediscount accommodation. This mistrust is gradually decreasing as a large number of successful companies are establishing their credits by operations reflected through their balance sheets.

It would seem entirely fair to conclude that the finance charge and net profit on the average unit is inconsequential as compared with the total cost of the car and the direct service rendered the dealer and the buyer. When we consider these figures in relation to the general benefits to the industry and the public, as noted previously in the flow of credits, and the increased and steady production influences, we must conclude that the service is truly an economic one, since it leaves a goodly margin of benefits after the cost of its functions is subtracted.

WEAKNESSES OF THE FINANCE COMPANY

A mushroom company, organized on a water basis and operated with an oil-well vision, has a wonderful opportunity for spreading industrial disease. It will assist automobile manufacturers of its own ilk by advancing "Floor Plan" money to dealers who do not know the difference between gross and net profits. By maintaining these dealers for a time, it gives a portion of the public an opportunity to invest in cars that will

soon be known as "orphans"—automobiles no longer manufactured. Orphans have a low intrinsic value, a very small resale value, and are an economic loss even before conception. These conditions are naturally precedent to loose retail credits. This type of dealer falsifies the cash consideration or the trade allowance on the traded-in car. He will also give false declarations as to the year model of the car to be financed, as well as any other misinformation that may serve his purposes. His "service" to the buyer is of the same general style, and that service has a decided effect on the desire of the buyer to meet his installment payments with the finance company. The circle is completed, and its undesirability and consequent loss to all concerned becomes continuously greater, as long as the combination is allowed to survive. The only saving feature in this situation is that such companies never have an ancient lineage. They are necessarily self-destroyers, and their investors' money must be used to heal the many wounds. This particular kind of commercial microbe will be less prevalent as financing business becomes more firmly established.

ADVANTAGES OF THE FINANCE COMPANY

1. It is a service organization with special training and equipment for passing on the credits and collecting

the payments on installment automobile accounts.

2. By gathering business from various localities and makes of cars and types of dealers, it spreads the loss ratio so that it is not felt as a burden at any one point.

3. Scientific credits in this one field inject a stabilizing influence throughout the industry.

4. It hastens the weeding out process of manufacturers and dealers operating near the economic margin.

5. It relieves frozen credits for the manufacturer and the dealer.

6. It provides a safe medium for the transfer of regular commercial credits to the new automobile industry.

7. It serves as the linking credit medium as among the bank, the manufacturer, the dealer and the buyer.

8. By its providing a wider distribution it makes possible large scale production, with consequent savings in cost and selling price.

9. By providing for the distribution to dealers of the finished product during the dull season, it makes possible steady production, an important item in the cost of manufacture.

10. It makes possible retail purchase of automobiles from income rather than capital. This method has long been recognized as sound in other phases of the transportation problem, such as the railroads and water carriers.

The Automobile and the "Home" of the Future

By JOHN F. HARBESON, M.S.

School of Fine Arts, University of Pennsylvania

WE are still apt to think of home as an individual house—detached, as the realtors say, or at least semi-detached—with its own yard and garden, at any rate with a space for children to play in; having a dining room on the first floor as well as a living room, pantry and kitchen; and above stairs a spare room and a store room as well as the bedrooms of the family, these latter still ample in size.

MODERN LIVING DESTROYS THE HOME

However, if we make a survey of housing today, we find this picture represents but a small proportion of this element and that proportion is decreasing each year. Housing is tending to change in several ways, the extreme being the efficiency apartment, "all front and no back." This usually contains a living room, which becomes at other times dining room or bedroom by means of various ingenious folding devices, there being in addition to this room of all purposes only a small and compact bath and a likewise small and compact kitchenette, or possibly only a closet space in which are placed a gas stove, refrigerator and sink with ingenious racks and drawers for supplies and utensils. This type of home houses a small percentage of the population as yet, but is one which is growing yearly.

In between these two extremes are various types of housing, ranging up the line of compactness and so-called efficiency, but becoming more materialistic and less sentimental as they grow more compact and efficient.

This progressive change in housing has of course been caused by like changing conditions of the life of present-day

civilization. As a people we were originally simple in our tastes and demands, perhaps because we did not know of anything else. We are become luxury-loving, pleasure-seeking, less placid and more nervous. Luxuries and pleasures cost money. Large rooms and detached houses cost money—more of course than before—because the workmen who build them are paid higher wages than formerly, they, too, demanding their share of the luxuries and comforts, and therefore the money that makes these possible. As a people we are choosing the smaller rooms, the pleasures and excitements, and the expensive comforts. We are spending money on a number of things our grandfathers did not have: a bath to each bedroom—this is certainly the tendency; a heat of more than 70 degrees throughout the winter; running hot water, day or night, and in quantity; excitement at meals—music; and our pleasures have become expensive: theatre tickets now costing what would have been within the memory of man a week's wages of a laborer. Even our attempts at physical well-being cost money, it being essential that we wear the proper sports attire, and these always of the latest model.

In addition to the demands of modern life already mentioned is the automobile, which is sometimes a convenience, sometimes a means of recreation, but in either case has a considerable effect on present day living. It is an expense, as are the other luxuries of modern life, and somewhere in the budget of the motorist must be found an average of \$500 yearly for running charges, taking no account of deprecia-

tion. In reducing the proportion of one's earnings which can be spent for so many square feet of home, the automobile has therefore been an additional cause.

The automobile has also had another effect on modern housing. As cities have become crowded there has of course been a tendency to spread. Within the past this has been stopped by the limits which one could ordinarily walk to and from the nearest means of transportation. This has meant that suburbs have grown in a thin line along the railroads and in clusters around the ends of such electric railway lines as went beyond the city limits. The growth of the automobile industry and the enormous production, which has so lessened the first cost of these machines as to tempt a large proportion of the population to invest in them, have caused an ever-increasing number of suburbs to be built, of which the principal means of communication with the towns about which they cluster, and from which they largely derive their means of support, is the automobile.

Along with its use as a means of transportation is of course the ever-present pleasure of being skipper of one's own ship and spending one's time in the fresh air. It is natural, therefore, that we are gradually drifting to the general opinion that ample rooms are of small importance, as we spend so much time out of them. When we realize that this process is hastened by other economic factors such as the diminution in the supply of efficient house servants, which causes those that are available to be increasingly expensive, and which likewise causes the servantless multitudes to eat the majority of their meals in restaurants or other public hostleries, we see that the change in the composition of the home is one that has come to stay.

At present there is in almost all of

these suburban houses a garage, built either in the basement or at the back of the property. It is a question whether this is a tendency we can consider as permanent. With the still greater increase in the use of the automobile and the increasing modern tendency to do away with all replacement and buy a new machine rather than repair the old—therefore causing us to take much less trouble about keeping the old in good condition—it is quite probable that a neighborhood garage will take the place of these individual store spaces, it being more convenient in many ways and less expensive, considering the service rendered.

A HOME IN NAME ONLY

The other tendencies in house design are more apt to endure, largely because of the effect upon the budget of our modern comforts and the luxuries that we consider essential. The old-fashioned kitchen has already gone. The dining room is going; when a cubic foot of home costs so much, we naturally begrudge spending our money for a room which is really used so very little. Bedrooms will approach more and more the pullman car compartment or the stateroom on a steamer, comfortable enough for the few hours we spend in them. There will no longer be a spare room; guests will go to a nearby inn; and of course a store room is an anachronism in this day, when we insist upon everything that we use being new. With the automobile at the curb, the home needs to be less a place to live in because it is so easy to get away from. There is more temptation to be always on the go and home becomes merely an overnight parking-place for the few hours after we finish our evening's entertainment and before the working part of the family must report at its place of earning its daily bread.

The tendency of modern families

toward childlessness has of course a great bearing upon this question. As a race we apparently do not assume the responsibility for replenishing the population. Perhaps it is only an acknowledgment of our lack of fitness for this responsibility. This tendency toward

a decreasing birth rate was quite marked before housing began to become compact and "efficient" in type. It therefore cannot be considered a cause, although the recognition of the tendency has certainly accelerated the change.

The Purity of Roadside Drinking Water What Pennsylvania Is Doing

By W. G. TURNBULL, M.D.

Deputy Secretary of Health, Commonwealth of Pennsylvania

WHEN the State Department of Health was organized in Pennsylvania in 1906, the annual death rate from typhoid fever in this state was 54.8 per 100,000 population. The great majority of cases were due to polluted water supply. Naturally, most of the epidemics occurred in communities having a public water supply, when the pollution of a single supply could infect a large number of people. Outbreaks caused by private water supplies were small and self-limited.

The supervision of public water supplies appeared, therefore, to be the most important step in the control of typhoid fever. Regulations were made governing the conditions under which water could be served to the public, and a Bureau of Sanitary Engineering was organized to assist the water companies and municipalities in complying with these regulations. Since that time the typhoid death rate has fallen steadily until in 1923 it reached 4.8 per 100,000. The public water supplies are under control and as a result are now but a small factor in transmitting disease.

Typhoid in Pennsylvania is now a rural problem rather than an urban

problem. This is true to a greater extent than statistics seem to show, as many cases developing in the cities have received their infection while on a trip to the country.

During this same period in which typhoid has been almost eliminated as a city disease, there has been a tremendous development of automobile travel and good roads. The traveling radius of millions of people in Pennsylvania has been increased from a few miles to several hundred miles. With this development has come a change in the importance of hundreds of water supplies. Roadside springs and wells, formerly used by single families, now furnish drinking water to lunch rooms, tourists' hotels, gasoline stations, or wayside drinking fountains. An infected spring or well, which formerly would cause disease in but a single family, may now infect large numbers of people in widely scattered communities.

ASSUMING CONTROL OF WATER SUPPLIES

Realizing this fact, the Pennsylvania Department of Health in 1924 felt that it should assume the control of these supplies along the main highways.

There are in Pennsylvania 10,800 miles of state highway, 3,942 miles of this being primary highway over which the bulk of traffic passes. It was decided that for the first year the work would be confined to the water supplies along the primary highways. The first problems to be solved were how all these supplies could be examined in a uniform manner.

The work had already been started in Ohio, which has a county health organization with local laboratories under state supervision. With Pennsylvania's centralized system of organization and large central laboratory, the Ohio method did not seem practical on account of the difficulty of properly collecting and shipping the large number of water samples. It was also feared that it would be difficult to develop a uniform technique for the work, if the sanitary inspection of the water supplies was made by different engineers in the various districts of the state. It was decided, therefore, to do all the work in the field, and to cover the primary highway system with one corps of trained workers. A two-ton truck with a large bus body was equipped with all apparatus necessary for the bacteriological examination of water. This laboratory was put in charge of a thoroughly trained bacteriologist with a field worker from the Section of Restaurant Hygiene as his assistant. The other member of the party was an experienced sanitary engineer who traveled in a separate automobile in advance of the laboratory, the traveling schedule being so arranged that the three men would meet each night.

The general policy adopted for the work was that only approved water supplies would be marked. This policy was adopted for three reasons:

1. It was realized that unapproved supplies would far outnumber ap-

proved supplies, and that the psychological effect of too many signs would be bad.

2. A large number of supplies that are potentially dangerous could not be proved dangerous at the time of examination. It would be unjust to mark these as dangerous, but there could be no injustice in withholding approval.

3. It was believed that better results could be obtained by making the signs popular and encouraging property owners to improve their water supplies in order to secure the sign, than could be obtained by posting an unpopular sign which would require constant police supervision to keep it in place.

This policy was followed except where supplies were found to be patently dangerous, and the posting of a warning sign the duty of the department.

METHODS EMPLOYED

In carrying out this policy the water supply was first examined by the sanitary engineer, who paid particular attention to the physical surroundings, drainage, character and protection of the well or spring. If changes or improvements could be readily made by the property holder, he was given the necessary instructions and opportunity. If the supply was finally approved by the sanitary engineer, he tacked in a prominent place a large red card bearing a serial number assigned to this supply. This was a sign to the laboratory which followed him that this supply was to be examined bacteriologically. Supplies disapproved on sanitary inspection were not examined further.

After the laboratory examination of these supplies was completed, those which were found to have met the bacteriological standards as well as the sanitary requirements were marked

with an enameled metal sign bearing the words "Safe Water Supply" and the date of approval.

The Department of Highways will in the near future place roadside signs along these highways requesting the traveling public to use only the approved water supplies.

During the summer of 1924 practically the entire primary highway system was covered by the traveling laboratory and 875 water supplies were examined. Of these only 38 per cent were found satisfactory and given safe water placards, many having this approval withheld until necessary changes were made. An additional 10 per cent disapproved on sanitary inspection can easily be made satis-

factory when suggested improvements are carried out, and will then be given a laboratory examination.

It is believed that re-examination of these supplies next summer will show a decided improvement. The work has met the approval of the traveling public, and the endorsement of the press. With increased information as to the meaning and intent of the safe water signs, the traveling public will make it unprofitable for any wayside eating house to maintain an unapproved supply.

It is an interesting experiment to the Department of Health, on account of its being a public health movement free from the always unpopular element of coercion.

Camping Sites in Public Parks and Forests

By L. F. KNEIPP

Executive Secretary, National Conference on Outdoor Recreation

THERE was a time when the average park or forest officer viewed the automobile merely as a mechanical curiosity; the automobile tourist as a misguided innocent who, burdened with gasoline-fumed troubles and responsibilities, lost much of the fine gifts of beauty and pleasure so freely available to the hardy souls who, with saddle and pack horse or with team, had access to the innermost recesses of the forests and mountains and enjoyed a certainty and comfort of locomotion which, to the automobilist, was a rare thing. But those days are long since passed away. Today, provision for the comfort and safety of the great host of motorists who now resort to the parks and forests for health and recreation is recognized by every park and forest officer as one of his primary obligations.

LURE OF THE OUT-OF-DOORS AND CONSEQUENCES

The growth in the motorists' use of the parks and forests was so gradual that for many years the officers in charge did not sense its true proportions. A road was regraded and improved here; a new section was constructed there; fords were replaced by bridges, and before anybody was really aware of it a great region, rich in scenic attraction and outdoor recreational opportunity, lay open to the motorist. Coincidentally, carload after carload of new motor cars were being unloaded in each of the nearby towns. A few venturesome souls found that they could drive out into the mountains and return home in safety and comfort; the open road called with an irresistible lure; and before their custodians fully

sensed the extent of the invasion the parks and forests teemed with pleasure-seeking, enthusiastic motorists.

The first tentative provisions for public campgrounds were purely defensive measures. For the growing army of automobilists created new conditions of hazard; hazard to public property through the thousands of campfires kindled daily by men who, however well-intentioned, knew little about the care of fire in the woods; hazard to public health due to the contamination of watersheds through the assemblage of thousands of people upon areas where no provision for the maintenance of good sanitary conditions had been made. The situation was in many respects an alarming one, requiring constructive action without delay. The first action which suggested itself was to draw the motorists to selected spots upon which the fire hazard and the menace to the health, not only of the motorists but of many thousands dependent upon the watersheds for water, could be held to the minimum. And so the first forest and park campgrounds came into existence. Even today there are many fine, well-equipped campgrounds maintained by state fire-protective organizations and other agencies solely for their protective value.

But as time wore on the vision of the park and forest officers passed beyond the bounds of self-interest and embraced the broader field of public service. Their studies of the situation disclosed to them the fact that the use of selected areas by motorists for camping purposes represented the highest form of human service to which such areas could be dedicated; that through such forms of use they returned more in human comfort and happiness than they possibly could in any other way. Since the ultimate objective of every good park administrator or forester is

to have the area under his management yield the maximum return in human service, each was quick to recognize and seize upon the new opportunity. Consequently, the park or forest campground has now ceased to be solely an instrument of fire or sanitary protection, but is instead a gesture of hospitality; an appreciation of an opportunity to serve.

A further extension of the park and forest campground system is now being stimulated by its possibilities as a source of revenue, materially reducing the costs payable from public funds. For there are an increasing number of motorists who prefer to seek the greater refinements and conveniences of the privately operated campground where for a moderate fee they may secure comforts and privileges not available on the free campgrounds. This trend creates increasing opportunity for private capital and managerial skill and a rental value for park and forest areas adapted to campground use. The fees paid materially offset the costs of park or forest administration and the motorists are enabled to secure the higher class of service for which they are willing to pay. Rarely, if ever, is the opportunity for gain allowed to deprive the public of free access to the areas really necessary for free camping purposes.

Years of experience have taught the automobile camper how to provide for his needs while afield, so that, as a rule, he fares forth well equipped and self-sufficient. His campground needs therefore are moderate: pure water, a convenient supply of firewood, simple sanitary facilities, a ready way of disposing of garbage or camp refuse, a fireplace in sites where the hazard is high; these, generally, are all that he asks or expects. In inclement regions or seasons any unpretentious form of shelter house which affords protection

against the elements is sure of appreciation. Tables and benches make a strong appeal and often influence a choice of campgrounds. Registration booths, where the apparently ever-present desire to inscribe one's name on something can be gratified, have a strong attraction. The basic necessities of a campground are not extensive nor expensive.

CONSTRUCTION COSTS

Exclusive of the shelter houses, tables and registration booths which, while desirable, are not imperatively necessary, the cost of installing the essential facilities on a campground capable of comfortably accommodating fifty people over night is in the neighborhood of two hundred dollars, assuming that water is convenient and that only pit toilets are to be installed. This is not a large sum, especially when distributed amongst the entire number of people using the campground during a single season. It is only when the total number of recognized campgrounds is considered that the true and rather alarming proportions of the total cost of an adequate system become evident. On the National Forests alone, the total number of areas used so extensively for camping as to warrant their dedication to such use is now about 1,500, which at \$200 each would require a total initial outlay of \$300,000 for their minimum development. To date Congress has appropriated \$50,000 for the purpose, and it has been only by the practice of numberless economies and the use of the slack time of fireguards and patrolmen that the Forest Service has been able to even partially keep pace with the growing needs of its summer visitors. More pretentiously developed campgrounds require heavy outlays of funds. A central comfort station with a battery of flush toilets requiring a con-

tinuous water supply and well-designed septic tank and distribution field will cost from \$5,000 up. Anybody who has built a garage can approximate the cost of a really well-designed shelter house. It is thus evident that many years must elapse before the average campground can offer to its visitors much more than the simple, even crude facilities mentioned in an earlier paragraph. Eventually, however, the motor camper will be able to spend every night of his trip on thoroughly comfortable, well-equipped campgrounds, provided he will do his part in demonstrating that they yield a return in better citizenship and greater individual efficiency commensurate with their cost.

NATIONAL PARKS AND FORESTS

Recent figures showing the extent of motor camping in state parks and forests have not been brought together, but it is certain that their increase during the past ten years has been as great, and perhaps greater than the increase in the National Parks and Forests. In these latter institutions automobile camping has about tripled in volume since 1916. In that year the number of visitors to the National Parks was 356,097; in 1923 it was 1,280,886. In 1916 the number of visitors to the National Forests was 2,370,000; in 1923, 10,553,000. In the National Parks the great bulk of travel has been by private automobile and the majority of the incoming tourists have brought their own camping equipment, prepared to camp out. In the National Forests in 1923 the proportion of automobilists to total visitors was about 88 per cent, and the proportion of campers, picnickers and transient tourists to the total was about the same. Every day these millions are looking ahead for clean, comfortable places in which to enjoy their noon-day

meal; every evening for similar places in which to make their over-night camps. Providing such places is to the park officer and the forest officer both a pleasure and a problem, but none fails to recognize it as a distinct obligation of public welfare and service.

In the National Parks the scenic beauty must be religiously preserved and good sanitation must be maintained; consequently it is necessary to rigidly restrict the automobile camper to designated campgrounds and impose careful conditions upon their use. In return, however, he enjoys sanitary systems planned in co-operation with the Public Health Service and installed at considerable expense: pure water, abundant firewood, tables and benches; electric lights, well policed grounds, and many other conveniences. Careful attention is given to the landscape aspect so as not to disturb natural conditions unnecessarily. The hotel, permanent camp, and transportation facilities in the National Parks have been greatly expanded to care for the mounting thousands who come each summer, but, nevertheless, the camper who "is on his own" is well provided for.

In some of the state parks, such as those of New York State, the campground facilities surpass anything to be found on the Federal lands, and many other states are rapidly attaining equally good standards. It is quite logical that State and National Park custodians should work aggressively to develop this increasingly important form of use.

NATIONAL AND STATE FORESTS

While neither the State nor National Forests in any but rare instances have as yet attained park standards in campground development, they nevertheless afford the motor camper an attractive field in which to follow his chosen bent. In the forests there are fewer really

first class campgrounds, but many more of the wilderness type, offering less in the way of electric lights, careful policing arrangements, and elaborate comfort stations, but making up the deficiencies by a great wealth of natural charm and scenic beauty, which after all is what the inveterate automobile camper most highly prizes. In the forests, rules may be a little less exacting; except in periods of extreme fire hazard one can camp in the isolation of the wilderness if he prefers that to the comfort of the campground. And each year marks the extension of the system to embrace new campgrounds or new facilities on old ones. Each year the forest officers, both Federal and State, are adding new gems to their campground collection, so that in the not far distant future the motorist planning his summer camping trip need only look on the map for the green blocks symbolical of a National or State Forest to find an area within which are combined all of the essentials of a happy hunting ground for automobile tourists. Within the forest limits, occupancy by the motor camper is, as a rule, informal and free from restriction. In many of them he must now secure a camp-fire permit, issued without charge or inconvenience; and in all of them he must exercise reasonable care with fire; he must observe the local game laws; and he must maintain a clean camp. One willing to observe these simple and most reasonable obligations has open to his free use and enjoyment the whole system of National and State Forests; areas rich in every element of natural beauty and interest essential to a thoroughly enjoyable camping trip.

At the call of President Coolidge, three hundred and nine leaders in social and humanitarian movements, representing one hundred and twenty-eight great national organizations, met in

Washington last May in the first National Conference on Outdoor Recreations. One of the outstanding recommendations of the Conference was that all public properties should be developed and made available to the public for purposes of outdoor recreation to the greatest degree consistent with the other purposes the areas were designed to serve. Toward this great objective the permanent organization created by the delegates to the Conference will

work in all practicable and reasonable ways. In view of the fact that travel to and through such properties will be preponderantly by automobile, and that their occupancy will be largely in the form of outdoor camping, the realization of the objective of the Conference will depend largely upon the expansion and continued betterment of the public campgrounds, and for such expansion and betterment the Conference proposes to work in all proper ways.

The Automobile and the Traveling Library

The Book Wagon Service

By KATHERINE TAPPERT

Librarian, The Morristown Library, Morristown, N. J.

WHEN I wrote "Books at Work in Washington County, Maryland," which was printed in the *American City* for January, 1920, I wrote to answer countless questions that came to the Washington County Free Library, Hagerstown, Maryland, asking for advice and information in organizing county library work and maintaining book cars or book vans that would make house to house visits, carrying the library directly to the front door of the country residents. In the four years that have gone by since that article was written, the county library movement, of which the book automobile is an important part, has grown tremendously and from the few outstanding book wagons existing in 1920 the number has increased many fold. From Massachusetts to California the sight of a book van on country roads is not unusual, and no longer are amusing questions asked of the driver of these vans. The first book cars were painted darker colors and did not have glass doors, so they

usually were taken for the "dead wagon" as the popular phrase went and often urged to pass on from the door where they had stopped.

THE PIONEER BOOK CAR

In 1920, the story of the book car was a simple one. It was easy to answer the questions that came to the Washington County Free Library concerning it, for that library had been the originator of the book wagon idea and had worked out a simple scheme for carrying on every detail of the work.

Miss Mary L. Titcomb, the librarian of the Washington County Free Library, had sent forth the first book wagon in April, 1905, and until 1910 it made its visits to the homes of the Washington County people. This first venture was a wagon drawn by two horses and the driver was the janitor of the library, a rare person who had ideal qualifications for the work. He knew the county, the people and the books and Miss Titcomb gave him much credit for the instant success of

this work. The wagon was fitted with shelves, carrying 250 books, and cost \$175.

In 1910 the wagon was struck by a railway train at a country crossing and for a few months the work was in abeyance. But this venture had been so picturesque and charming and so filled with good result, as an educational measure, that in 1912 the work was resumed with a specially constructed automobile truck carrying 300 books, taking the place of the old wagon. The annals of Miss Titcomb's library have been written and told many times and it is a tremendous satisfaction to all educators to know that, today, she is watching the growth of her idea from the same library, and that her work goes on with the same usefulness and distinction and with increasing influence.

Some time after the book wagon had been at work in Washington County, Maryland, two counties in Delaware—Sussex and Kent—took up the idea and the success of the work there was parallel to that in Maryland. Of course, county libraries had been established in several states before the book wagon idea was born, but they had served their patrons in a different manner. The old deposit stations and traveling library had been the scheme that satisfied in those years from 1891 until 1905, when the book wagon began to shed light in the Blue Ridge Mountains in Maryland. Between 1910 and 1924 book automobiles were added to county library systems in Ohio, Indiana, Illinois, Minnesota, Oregon, California and Alabama, and from the simple car, carrying 300 books and a driver and an assistant, there is in Hibbing, Minnesota, a book van which cost \$8,000, shelves 700 books, carries a librarian's desk and has room for twelve people inside its veritable library reading-room, lined with

shelves. The book lorry goes through the mining section about Hibbing and is one of the strongest influences in that state in the work of Americanization.

THE BOOK WAGON SERVICE

There are varying details in the administration of book wagons and various types of co-operation. In Morris County, New Jersey, the book wagon is the property of the Morris County Free Library and it makes daily trips through Morris County for that institution. One day in each month this book car is lent to the Morristown Library and with books belonging to this library and assistants from it, the car makes visits to eight stations in the township of Morris, the stations being four township schools—the Morristown School, a private school,—the Physiatric Institute, Mendham Town Hall and Western Avenue Fire House. The Morris County Library and the Morristown Library are quite separate institutions, but their co-operation in book distribution through a book wagon is one interesting example of the possibilities for wide service that this method offers. Motor book lorries are used in England by the County Library Associations, but they are not so usual as they have grown to be in the United States. However, a Perthshire book van starting on its county tour has much the same appearance as one going forth from Kern County, California, or Boone County, Kentucky.

The variation in book wagon service has had another turn in Evanston, Illinois, where the Public Library has used a book wagon to visit schools and playgrounds and branches within the city limits.

A half-sister of the book wagon sent out by the county and public libraries is the book shop on wheels, Christo-

pher Morley's *Parnassus on Wheels* came to life a few summers ago, when an automobile went forth from the Educational and Industrial Union of Boston, furnished with books by the Book Shop for Boys and Girls. This caravan had so successful a summer selling books along the North Shore that Frank Shay followed another New England route the next year, with a book caravan that brought the latest printed word to grown-ups. Even if these are commercial ventures they show the way the wind is blowing and give an indication of the necessity of books in the life of any nation.

After all, there is small difference whether the book van is the simple wagon of 1905, carrying 250 well-selected books to the home-bound mountaineers, or an \$8,000 book lorry of luxurious appointment carrying several hundred books to the miners of Minnesota, or an ample car penetrating the fastnesses of Alabama's rural districts. The one salient feature that has led to making the movement a real part of history is the wise policy of book selection that has been observed by the women and men who have carried the idea from Maryland to Oregon. The best books that would be read by the potential readers have been carried to them and besides carrying just books, the automobile book wagon has carried women, usually, who knew the psychology of the borrowers along the road, and these women have entered into the daily life of the communities which they have visited. "Land that is to become fertile must first be tilled,"

and the success of the book wagon in every part of the United States is due to the "tillage of the land." When Walter Page was editor of *World's Work*, he—a Southerner—said to Miss Titcomb—a Northerner most successfully transplanted in the South—that she must not expect to accomplish anything in a Southern community until she knew when the baby had cut his first tooth—or his last one. That is the secret of success in any community, and all leaders and teachers know that it applies to the north, east, or west, as well as to the south.

The growth in the use of the automobile has rushed life along and brought many changes in the twenty years that have passed since the book wagon, drawn by two smart black horses, stopped at the first gate on a Maryland turnpike and offered a winters' reading for the choosing. The automobile has carried the book to thousands of country people since then and it has as certainly brought the farmer to the town and to the book that is housed in the central library, whether that library be a county library, a city library or an endowed library. Maybe the work has reached its peak and maybe the automobile book van will pass into history, while the airplane will come on to pick up a best seller at the publishing house on Long Island to drop into the reader's hand in Wyoming. However marvelous developments may be, it will be difficult to equal in charming simplicity and incalculable good the work done by the first book wagon of 1905.

Consolidation of Schools and Pupil Transportation

The Use of the Automobile in Education

By LEROY A. KING, PH.D.

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THERE has probably been no movement in education that promises so far-reaching an influence for the development of rural life in our country as that of the consolidated school and pupil transportation. Undoubtedly, we are just at the beginning of its development in most of the states of the union. The consolidated school has already justified itself educationally. To get a proper perspective of the present situation, however, it may be well to look briefly into the historical background of the beginning of this movement.

HISTORY OF THE CONSOLIDATION MOVEMENT

Horace Mann, from the very beginning of his term as secretary of the Board of Education of Massachusetts, recognized in the school district system one of the greatest barriers to educational progress. In 1838, he succeeded in having a law passed by the legislature authorizing two or more districts to establish a union school, and in 1850 a law was placed on the statute books instructing a town of ways and means to dispose of its district schoolhouses in case it decided to abolish the district. It is reported that by 1860 probably one hundred towns and cities including about one-half the inhabitants of the state had voluntarily abandoned the district system. During the next two decades, several laws were passed abolishing school districts but were just as speedily restored by succeeding legislatures, until finally in 1882 the school

district was permanently abolished. At that time only forty towns had retained the district.¹

A far-reaching social and economic transformation took place in Massachusetts when manufacturing displaced agriculture. As industrial communities and cities sprang up over the state, a general movement of the people from the rural districts to the larger centers resulted. This left stranded many of the once-flourishing district schools, and the effect was a widespread movement for consolidation.

While the first law authorizing the consolidation of schools was passed by the Massachusetts Legislature in 1867, consolidation received its first impetus through the passage of the law of 1869 authorizing school trustees to pay, out of its school funds, for the retransportation of children to a neighboring district. The law reads as follows:

Any town in the Commonwealth may raise by taxation or otherwise and appropriate money to be expended by the school committee in their discretion in providing for the conveyance of pupils to and from public schools.

The records show that the towns of Greenfield and Quincy closed their district schools in 1869 and 1874 respectively, and had the pupils conveyed to central schools. The town of Montague was a real pioneer in closing a large number of district schools in 1875,

¹ Consolidation of Schools and Transportation of Pupils at Public Expense, Bulletin of the Department of Education of Massachusetts, 1920, No. 6.

conveying both the elementary and high school pupils to a central school. The town of Concord was probably the first to effect complete consolidation, since the records show that all the district schools were closed in 1887 and the pupils were transported to a new eight-room school building.²

Mr. Seymour Rockwell, a member of the school committee of the town of Montague, wrote in 1898 regarding the consolidation of schools as follows:

For 18 years we have had the best attendance for the transported children; no more sickness among them and no accidents. The children like the plan exceedingly. We have saved the town at least \$600 a year. All these children now attend a well-equipped schoolhouse at the center. The schools are graded; everybody is converted to the plan. We encountered all the opposition found anywhere, but we asserted our sensible and legal rights and accomplished the work. I see no way of bringing the country schools up but to consolidate them, making them worth seeing; then the people will be more likely to do their duty by visiting them.

The movement spread from Massachusetts into Ohio and Indiana. Like Massachusetts, they organized on the township basis of administration, which plan tends to make the consolidation or centralization of schools more feasible. In 1892, Kingsville Township, Ohio, decided to transport the children of the township to a central district school, and through the enactment of a bill in the General Assembly the state met the cost of transportation. After the passage of several subsequent laws applicable to individual districts, the General Assembly in 1898 passed a general law relative to transportation. This was followed by another act in 1904 authorizing the boards of education in

townships to abolish all sub-districts and convey the pupils to a central district. The movement for consolidation progressed rapidly until, in 1912, one hundred and ninety-two townships in the state had completely centralized their schools.³

In Indiana the consolidation movement began to flourish with the passage of an act by the Legislature in 1889 recognizing the right of township trustees to pay for the transportation of pupils to consolidated schools. In 1912, there were five hundred and eighty-nine consolidated schools distributed in seventy-three of the ninety-two counties of the state.

While Massachusetts, Ohio and Indiana have probably established a greater proportion of consolidated schools than any of the other states, yet today there is not a state in which there are not consolidated schools. States with the larger township and county units of administration have made the greatest progress. New York and Illinois with the school district type of organization have proportionally the smallest number of consolidated schools.

GRANTING OF STATE SUPPORT

In practically all the states, there is now written on the statute books permissive legislation giving the voters of the school district the authority to centralize their schools and transport the pupils at public expense. In some of the states, these laws have become mandatory, requiring school districts to establish schools that give children adequate educational opportunities. However, in a number of states, the consolidation and transportation movement has received its greatest impetus

² Consolidation of Schools and Transportation of Pupils at Public Expense, Bulletin of the Department of Education of Massachusetts, 1920, No. 6.

³ Consolidation of Rural School and Transportation of Pupils at Public Expense, by A. C. Monahan, United States Bureau of Education, Bulletin, 1914, No. 30.

through legislation requiring the state to aid the local district by meeting part or all the expense of some phase of consolidation, such as transportation, supervision, cost of building, etc.

The following state laws are significant:

Delaware. The schools are administered by the state which pays entire cost of transportation. Appropriations of \$100,000 for 1923-24 and \$105,000 for 1924-25 were made to cover the costs of pupil transportation including purchase of new vehicles, drivers' salaries, maintenance, etc.

Iowa. The state gives aid to approved consolidated schools for maintenance annually as follows:

Two-room schools	\$200
Three-room schools	500
Four-or more-room schools . .	750

This aid may be expended for any current expenses including transportation.

Massachusetts. A town of less than five hundred families that does not maintain a high school must provide for the instruction of its high school pupils in the schools of another town, pay their tuition and the cost of transportation up to 40 cents per pupil per day of actual attendance.

If the amount spent for schools in the three preceding years averaged more than \$4.50 and less than \$5 of each \$1,000 raised by local tax, the state will reimburse the town for one-half the amount paid for such secondary pupil transportation. If the average was more than \$5 and less than \$6, the reimbursement is three-fourths of the amount; if more than \$6, then for the entire amount, such reimbursement not to be based on any cost of more than 40 cents per pupil per day of actual attendance, except when pupils travel more than three miles in some manner other than by pupil convey-

ance. In that case the town may be reimbursed three-fourths of the amount spent above 40 cents, but not above 80 cents for each day of attendance.

Pennsylvania. Any school closed because of an average term attendance of 10 or less than 10 shall furnish transportation for its pupils to some other school or schools if the children reside one and one-half or more miles from such schools, and the state will pay one-half of the cost of such transportation, the state's share not to exceed \$1 per day per pupil.

Consolidated schools, joint consolidated schools, and schools that have transported pupils to another for the purpose of better gradation—when approved by the state council of education—shall receive annually from the state one-half the sum spent for transportation during the previous year, not including costs of repair and purchase of vehicles. No district shall receive more than \$3,000 from the state for this purpose in any one year. The state also appropriates two hundred dollars for each one-teacher school closed to effect the consolidated district.

Vermont. The state pays the cost of transportation or board of all children residing more than one and one-half miles from the school, in towns with a grand list of less than \$5,000, and its share in the ratio that \$5,000 bears to the grand list if that is more than \$5,000. But the state shall not pay any town district an average of over \$20 a year for each pupil transported.

Wisconsin. The school board of a district, acting on a vote of the district, may suspend the school, pay the tuition of the children in another district or districts, and provide transportation thither for all children living more than one mile from the nearest school. If the school has been closed eight or more months, taxes levied, and contracts for

TABLE I—DATA ON CONSOLIDATION AND TRANSPORTATION FOR 1923-24, OBTAINED THROUGH A QUESTIONNAIRE AND REPORTS FROM STATE DEPARTMENTS OF EDUCATION IN SIXTEEN TYPICAL STATES

	ARK.	DEL.	ILL.	IOWA	KY.	MASS.	MICH.	MINN.	MISS.	MO.	NEBR.	N. C.	ONE.	PA.	TENN.	VT.	TOTAL	Ave.
No. consolidated schools . .	220	36	124	387	180	2,300 ¹	477	331	470	248	98	491	53	400	526	10	5,946	371.6
No. pupils attending consolidated schools . . .	34,000	2,500	40,374 ²	81,131	17,500	607,000 ³	10,760	.	61,521	42,432 ⁴	14,728	...	3,000	50,000	...	2,000	989,136	74,548.9
No. pupils transported . .	1,200	2,500	600	45,900	8,000	27,000	5,779	27,768	30,772	1,300	4,530 ¹	31,544	1,500	15,000	9,654	...	312,647	14,196.4
No. motor buses used	70	60	30	1,023	200	250	207	...	1,530 ⁵	20	163	883	100	600	163	...	5,266	376.1
No. horse-drawn vehicles used . .	None	3	None	1,709	100	850	21	.	...	27	86	...	...	500	260	...	3,556	322.3
Capital outlay . .	\$50,000	...	...	...	...	\$30,000 ⁶	\$240,000	.	...	.	\$110,038	\$250,000	...	\$300,000	...	.	\$930,038	\$163,343
Cost of transportation . .	...	...	...	...	...	...	...	\$397,273	\$795,576	\$78,320	\$157,506	...	...	\$000,000	...	...	\$2,520,175	\$505,835
Cost per pupil per month . . .	.	....	...	\$5.24	\$3.00	\$4.40	...	\$3.18	\$3.18	...	\$3.00	...	\$7.00	\$3.00	\$2.64	\$5.63	\$43.72	\$4.37
No. one-teacher schools . .	3,890	267	10,044	11,000	5,900	662	6,658	.	...	660	6,317	8,240	2,000	8,889	...	1,160	60,617	4,663
No. pupils attending one-teacher schools	225,000	7,602	200,000	205,000	...	14,912	200,000	...	...	6,500	129,631	50,000	...	250,000	...	15,500	1,804,695	118,554.1
No. one-teacher schools closed in five-year period	100	43	100	1,000	750	100	244	...	...	185	80	1,441	...	400	100	None	4,548	428.4
State support for consolidation and transportation . . .	..	Context	None	Context	None	Context	\$1,000 maintenance per vehicle	Context	...	Approximately \$25 per square mile per year. Total not to exceed \$2,000.	None	...	None	Context	ing.	Context	...	....

¹ Includes all schools of two or more rooms in Massachusetts.² Consolidated under Rural Agriculture School Act, operative in 1919. There are approximately two hundred consolidation districts from the standpoint of administration, with some transportation.³ Including two city consolidated districts.⁴ Including 9,384 high school pupils.⁵ Including horse-drawn vehicles.⁶ Buses, in general, privately owned.

transportation and tuition legally carried out, the district is given \$150 as special state aid. A union free high school may also receive \$150 of state aid annually on account of pupil transportation.

EXAMPLES OF GROWTH OF CONSOLIDATION AND TRANSPORTATION MOVEMENT

In Table I will be found data relative to the consolidation and transportation movement as given by the respective state departments of education of a group of sixteen states representing every section of the country. These sixteen states represent a total of 5,946 consolidated schools with a total attendance of approximately 969,136 pupils. Of this number, 212,947 are transported by 5,266 busses and by 3,556 horse-drawn vehicles. It is significant to note that in thirteen of the sixteen states, 4,543 one-teacher schools were closed during the past five years. While the abandoning of one-teacher schools was brought about in approximately equal proportion in all sections of the United States, yet in the states of Iowa, Kentucky and Pennsylvania the movement was carried on to a greater extent than in any of the other states. Thirteen of the sixteen states report that there are 60,617 one-teacher schools in use in their states, which is an average of approximately 4,663 per state. Iowa, Illinois and Pennsylvania lead with approximately 11,000, 10,000 and 9,000, respectively. The capital outlay for motor busses in six of the states is estimated at \$9,005,800, and the cost of transportation in five of the states which had this information available is \$2,529,175.

This data is substantiated by statistics issued by the United States Bureau of Education,⁴ who estimate that there are today approximately 12,500 consolidated schools in the

United States with an enrollment of approximately 2,050,000. They also estimate that there are 37,000 vehicles used in public school transportation for 851,000 children daily at public expense to and from schools. A conservative estimate of the capital outlay is in the neighborhood of \$7,500,000. In *Facts and Figures of the Automobile Industry, 1924*, issued by the National Automobile Chamber of Commerce, it is reported that in 1923 there were 13,037 consolidated rural schools in the United States, of which 1,393 were established in 1913 alone. They report that 504,933 children are transported to schools at public expense and that of this enormous number approximately 289,000 children ride in motor busses.

While these figures are somewhat at variance, yet they point out unmistakably the tremendous growth of this movement in the United States in recent years. With all of this development, however, it must not be overlooked that the Federal Bureau of Education also reports that there are approximately 175,000 one-room schools in the United States with an enrollment of approximately 3,289,000. The Bureau estimates that there were probably 20,000 one-teacher schools in the United States closed during the past three years.

The growth of the consolidation movement can also be well illustrated by the data shown on page 74 from a typical southern and western state.

THE USE OF THE AUTOMOBILE IN TRANSPORTATION OF PUPILS

To supplement the data just covered relative to state development, it

⁴ *Consolidation of Schools and Transportation of Pupils*, by J. F. Abel, United States Bureau of Education, Bulletin, 1923, No. 41. Also Unpublished Manuscript by the Rural School Department, Bureau of Education, Washington, D. C.

TABLE II

	1917	1920	INCREASE IN PER CENT
In Mississippi:*			
Number of counties having consolidated schools	64	78	22
Number of consolidated schools	280	470	62
Number of teachers in consolidated schools. . .	977	2,049	109
Number of wagons or auto trucks used.	725	1,539	112
Enrollment	30,037	61,821	87
Number of pupils transported	14,643	30,772	110
Cost of transportation per month.		\$99,447	...
Cost per pupil per month		\$3.18	...
Number of teachers' homes in consolidated schools.		98	...

In Iowa:†
1897-1912, average of 1 new consolidated school per year.
1913-1916, average of 40 new consolidated schools per year.
1917-1920, average of 60 new consolidated schools per year.
Total to date (December, 1921) is 439.

* *Consolidated Schools*, by J T Calhoun, State of Mississippi, Department of Education, Bulletin No. 17, 1920
† *Growth of Consolidated Schools in Iowa*, by Macy Campbell. Bulletin of the Iowa State Teachers' College, Department of Rural Education, September, 1921.

might be well to point out the progress made in consolidation and pupil transportation through the use of the automobile in Montgomery County, Pennsylvania; Montgomery County, Alabama; and Randolph County, Indiana.

Montgomery County, Pennsylvania

In the period prior to 1923 there were 60 one-teacher schools in the rural districts closed through the organization of 18 consolidated centers. Some of the early rural centers transported their children by railroad or trolley. West Norriton, the first district to consolidate its schools, used the auto bus as early as 1909, when consolidation went into effect. Today, practically all the districts use auto busses and in the majority of the cases the busses are owned by the district.
According to County Superintendent A. M. Kulp, there are in every district in the county sufficient hard roads to adopt a policy of consolidation effec-

tively and economically. The total mileage of good roads has increased because of consolidation. Today, there is hardly a district in Montgomery County in which the future consolidation policy of the directors of the public schools does not enter into that phase of the road progress which determines the order in which roads shall be improved.
Undoubtedly the auto bus, which makes transportation possible in these rural centers, has been the dominant factor in rural progress. It has made possible community centers in the open country whose standards of progress and whose ideals of civic improvement have gradually approached those existing in urban centers.
District "X" (see map) maintains nine one-room schools. There is a total enrollment of approximately 300 pupils. These pupils are at a distinct disadvantage when their school opportunities are compared with those of

TABLE III.—THE CONSOLIDATED CENTERS OF MONTGOMERY COUNTY, PENNSYLVANIA

District	Year Consolidated	No of Consolidated rural centers	No. of schools closed since 1909	No and types of transportation	No. of children transported	District-owned bus* Privately owned bus†	Total cost of transportation	Cost per child per day
A. West Norriton ..	1909	1	1	1 auto	125	*	\$1,424 99	\$ 057
B. East Norriton ..	1912	1	1	1 auto	29	*	654 88	.112
C. Upper Merion ...	1911-1917	5	7	4 autos	117	*	3,300 00	.141
D. Plymouth.....	1914	2	4	Trolley	29		726 00	1 25
E. Upper Gwynedd	1915	2	4	2 autos	97	†	1,980 00	.113
F. Worcester.....	1915	2	7	1 auto	225	*	2,553 85	.066
G. Upper Moreland	1916	1	1	1 auto	54	†	1,800.00	.166
H. Lower Moreland	1917	1	3	2 autos	46	†	1,877 00	.203
I. Whitpain.....	1917	1	6	2 autos	200	*	2,179 47	.06
J. Lower Providence	1917	3	4	Trolley	65		2,387 04	.204
K. Limerick	1917	1	5	Trolley	84		1,437 98	.107
L. Springfield.....	1920	3	1	2 autos	60	*	.... .	....
M. Whitmarsh ...	1921	3	4	2 autos	175	†	4,495 98	.128
N. Hatfield.	1921	1	7	3 autos	222	†	7,200.00	.18
O. Upper Dublin ...	1922	3	1	1 auto	40	*	1,318 61	.164
P. Upper Providence	1922	1	2	1 auto	7	†	450 00	.357
Q. Lower Gwynedd.	1924	2	3	1 auto	92	†	1,800.00	.101
R. Montgomery. ..	1924	1	3	1 auto	12	†	600 00	.277

District "J" (see map), which maintains a one-teacher-to-a-grade organization. This disadvantage in time devoted to school subjects per week in the eighth grade is shown by the table below, which represents the median of

the times devoted to the various subjects in the nine schools of District "X" compared with the times devoted to pupils in a one-teacher-to-a-grade organization.

Other advantages, according to the

TABLE IV.—TIME ALLOTMENT IN THE EIGHTH GRADE IN A CONSOLIDATED SCHOOL IN ONE DISTRICT IN COMPARISON WITH THE MEDIAN ONE-TEACHER SCHOOL TIME IN ANOTHER DISTRICT

SUBJECT	MINUTES PER WEEK	
	Consolidated Schools District "J"	One-Teacher Schools District "X"
History and Civics.....	715 Min.	180 Min.
Arithmetic.....	1,200	850
Reading.....	1,650	550
Spelling.....	800	330
Language.....	1,000	"X"
Geography.....	750	135
Music.....	870	80
Drawing.....	210	80
Writing.....	355	75
Sewing.....	130	*
Systematic memory work.....	120	*

"X" Included in time devoted to spelling.

* Not included in course of study.

county superintendent, for the child attending the consolidated schools are:

- (1) Grouping of children so that an enriched curriculum may be used with bright pupils, and manual skills developed in the training of children who make slow academic progress.
- (2) Social contacts in large groups of children of their own mental and physical development.
- (3) Mass athletics and organized play.
- (4) Contact with the practical arts; home-making for girls and agriculture for boys.
- (5) Art appreciation through the employment of supervisors of music, drawing and penmanship.

The Barren Hill rural center was formed in 1921. Its community is approximately five square miles. In this district a strong home and school league function to promote sentiment for better schools and to elevate the civic ideals of the district. They have been instrumental in having hot lunches served to the school children. They have made visual education possible through the purchase of stereopticon views for use in the schools. Their co-operation contributed to the success of an excellent Lyceum course promoted by the principal and the directors of the district.

Since consolidation was effected, the community has grown rapidly. The excellently organized school and the community life that has grown up around it have attracted many people from Philadelphia and its suburbs. Here, also, the auto bus in education has substituted a city-to-country movement for the former exodus from the country-to-city. Within the short space of three years the demand for

new homes has increased real estate values enormously.

Hatfield Joint Consolidated School maintains a first-class high school with vocational courses. Musical instruction is given to every student enrolled. So enthusiastic has been the reception to work in music and art appreciation that the auditorium, seating approximately five hundred, has been filled whenever the children of the community render a program.

The agricultural supervisor has become a scientific missionary among the farmers who heretofore were practising their vocation in the traditional way. Seed corn, milk and soil have been tested for farmers living in all parts of the district which is the prototype of the New England town. Courses in cooking, dressmaking, laundering, costume designing, etc., have given the life of the community a new aspect. High school girls and boys have carried their new ideals into their homes as well as into the houses of other communities where they have appeared at public meetings, publicly describing their achievement in school.

These are only types of community centers prevailing all over the country. But in every one there exists the same confidence in the efficacy of their schools. In no community could one find a considerable number of citizens who desire to go back to the old one-room school. Original doubters have become the staunchest advocates of this method for educational development. A period of only two or three years is required to pass through the successive stages of violent opposition and quiescent skepticism, and then enthusiastic advocacy of these schools follows. Everywhere, the feeling prevails that the auto bus and better roads are the agencies that make possible the consolidated school with its resultant fuller rural life, and

only through it can rural sections be saved from farm depletion.

Montgomery County, Alabama

Montgomery County, Alabama,⁵ is an outstanding example in the South of the development of the consolidation movement. As a result of a county survey in 1917, the board of education decided to consolidate the schools of the county and in 1918 and 1919 twelve auto busses were purchased to transport children to the seven rural centers. By May, 1922, the board had purchased a total of twenty machines. These, according to the superintendent of schools, covered a mileage of 107,808 miles for the school year ending in May, 1922.

Randolph County, Indiana

Randolph County, Indiana, is one of the most conspicuous examples of consolidation in the Middle West. The county has excellent roads and the consolidation problem as a consequence was very much simplified. According to an account issued in 1921 by the county superintendent of schools, the children are transported to school and returned home without great cost and with general approval of the patrons. The outstanding feature of this county is probably its high school courses.⁶ Prior to consolidation comparatively few eighth-grade graduates entered high school. A thorough investigation showed that for five years previous to consolidation the percentage entering high school after completing the eighth grade varied from 21 to 50, with an average for the county of less than 40 per cent. Since consolidation the entire county has averaged more than 98

per cent. In the years 1915-1917, out of a possible 735 pupils, 706, or slightly more than 96 per cent, entered high school.

CONSOLIDATION THROUGH THE
MOTOR BUS

In practically every state authority has been given to school officials by the state legislature to utilize public funds for transportation of school children. It is difficult to say just how large a consolidation unit should be, since there are many factors that must be taken into consideration such as population, topographical conditions, wealth of the district, condition of roads and the kind of transportation desired by the people. Undoubtedly, auto transportation is the most desirable, provided conditions make it feasible, since it tends to insure a larger consolidated unit. A small consolidated unit, while it is an improvement over the one-teacher school, has been found universally unsatisfactory. The transportation problem has become mutually tied up with the good roads movement in the several states. Wherever the co-operation of the government officials is obtained in planning road improvements, the difficulties of transportation decrease. The state departments of education reported in the questionnaires that motor busses are now being generally installed in new consolidation centers and are replacing horse-drawn vehicles just as rapidly as the good roads development is keeping in line with educational progress.

Auto companies are manufacturing and developing many kinds of motor-driven busses and school people may select from a wide choice of machines adapted to a variety of needs.

Through the modern improvements in auto bus construction, school children ride in comfort and, according to superintendents, in them they are less

⁵ *Transportation of School Children*, Montgomery County, Alabama, T. R. Head, Jr., September, 1922.

⁶ *School Consolidation and Rural Life*. Bureau of Education, Rural School Leaflet No. 1, February, 1922.

exposed to cold and inclement weather. Notwithstanding the greater initial cost, the auto bus can be run quite economically because of the saving of time which enables the same machine to make several trips. One auto frequently does the work of three horse-drawn vehicles.

The automobile has been found invaluable to superintendents and supervising principals and to school officials in the administration of schools. In the rural districts, the agriculture specialists and farm agents are able, by the use of it, to make first-hand contacts with the farmers of the county. It is the means by which the vocational supervisors in agriculture and home economics supervise schools and carry on their itinerant teaching in the small and scattered one-room schools. Moreover, its use is most important in furthering the project work required of students in rural vocational schools, which work must be closely supervised through the summer months.

Superintendent Clyde T. Saylor, of Chester County, Pa., reports that dental hygiene work has been made possible in his county through the use of the automobile. He says:

A thoroughly trained dental hygienist spends her time (ten months of the year) in the schools giving lessons on the care of the teeth. She holds dental clinics for the examination of the teeth of the school children and even cleans the teeth of those who need it. She carries all her own equipment, including a folding dental chair, with her in her car. She visits principally one-teacher schools and spends an entire day in each school. The dental hygienist has been able to give prophylactic treatment to from eight to twelve children in a day, which means that from fifteen hundred to two thousand children receive dental treatment annually in the rural districts.

It is a well-known fact that the automobile and the motor bus are being put

into service more and more in the larger cities of our country, for the transportation of children to schools concentrated in larger centers, and to schools with special class instruction. Schools for crippled children, open-air schools, schools for mental defectives, continuation schools, etc., are examples of some types of specialized education.

The superintendent of the New York schools reports that the city employs 180 motor busses in which 7,512 children are carried daily. These include kindergarten pupils and crippled elementary and high school pupils. Between the hours of ten and twelve, the machines owned by the city are utilized in delivering supplies and equipment throughout the city, thereby making the investment an economical proposition.

Detroit has invested approximately \$32,000 in 15 motor busses to convey crippled, blind and deaf children and those afflicted with weak hearts.

Baltimore and Philadelphia report extensive and constantly increasing use of the automobile. The latter city employs 12 busses to transport 300 crippled children and four busses to convey children from rural parts of the city.

ADVANTAGES OF SCHOOL CONSOLIDATION

Since the limited data available on this topic very definitely indicates that the auto bus and the automobile contribute so materially in the development of education in the rural country, it might be well, in closing, to point out in a general way the far-reaching effect that the consolidated school is making on the educational development of this country.

From a social and economic standpoint:

1. It stimulates a rapid and stable community development in all social and eco-

nomic life through public interest aroused in schools.

2. It tends to broaden the social community life and community spirit. This can be exemplified by the development of the community church, the grange, the lyceum, public evening meetings and entertainments of all types.

3. It increases land values, as prospective buyers are willing to pay for better educational advantages. In Champaign County, Ohio, for example, 55 per cent of the children in the community who go to the consolidated schools come from homes owned by their parents. In one of the townships the percentage of parents owning their own homes has increased in three years from 30 to 64 per cent. Highways have been improved in all parts of the county and the superintendent reports that 1,625 miles of good roads in the county have resulted largely from consolidation. Rural communities, that at one time seemed remote, can now be reached by automobile in an hour's time and by telephone in a few minutes.

From the standpoint of organization, administration and supervision:

(1) Consolidation recognizes the principle of equality of educational opportunity. This means a longer school term, more skillful teaching, specialized instruction, helpful supervision, graded school conditions, well-organized and enriched curricula, adequate provision in grounds, building and equipment, high school advantages—equal opportunities for every boy and girl, whether rural-bred or city-bred.

(2) Consolidation tends to equalize the educational burden in that local school support is obtained from a larger area, thereby causing the wealthier districts through equalized taxation to help support those less fortunately situated.

(3) It affords the possibility of arranging better units for the apportionment of school-funds. State school support should be distributed on the basis of ability and needs with the thought at the same time of stimulating effort and the proper use of funds.

Influence of the Automobile on the City Church

By JAMES J. COALE

Secretary, Presbytery of Baltimore, Committee on National Missions

THE metropolitan centers in the United States have grown up around the development of industry. Their growth and the shaping of their area have been determined by the establishment of facilities for transportation. The electric trolley car, in the closing years of the nineteenth and the first two decades of the twentieth centuries, not only made possible the sheer physical feat of housing vast populations in the cities, but determined exactly what areas in the metropolitan districts might be built up, and was one factor in deciding the economic and cultural levels of the various sections of the city.

THE PROBLEM

No other group in the city's population has been more affected by this familiar development than the churches. Following the rush of population uptown in New York City, made possible by the building of the elevated railroad system, and the electrification of the horse-car lines, it is stated that over two hundred churches south of Fourteenth Street moved north to various points on Manhattan Island. Some of these churches have moved not once, but twice and even three times, in the effort to follow the drift of population.

An exceptional church would elect not to move, but to remain and entrench itself down-town. Trinity and St. Paul's in New York, the old Stone Church in Cleveland, Ohio, St. Paul's in Buffalo, N. Y., the First Methodist Church in Chicago are familiar instances of the down-town church. These churches have found their constituency in individuals and families living in all parts of the city, held by sentimental attachment to the old church; in the population of those down-town environs (usually living on an economic standard lower than that of the congregational average) and the floating down-town element. The out-of-town stranger at the hotel and a class of people in every city, designated in Chicago as "Loop Hounds," who simply love to come down-town, even on Sunday, make up the transient element to whom the down-town church especially appeals.

The extension program of the church bodies has for a long period shaped itself in accordance with these factors. Ignoring the specialized ministry to immigrant and industrial communities, which do not enter into consideration here, the groups responsible for city church extension have been under the necessity of finding some way of balancing the claims of the neighborhood church with a local appeal, and the down-town church which must, in the nature of the case, be both a family church and a mission station.

The extension of a subway or surface line stimulates the development of a new city neighborhood away out in the suburbs. A new church is established. Shall a member of a church down in the city retain his membership there, where his services and his financial contributions may be sorely needed, or transfer his membership to the new church right near his home? The children have usually been the deciding

factor. The trolley-ride down into the city proves too irksome for parents with small children. It has nearly always been found more convenient to send the children to the neighboring Sunday School. When the time would come for the children to unite with the church, they would go with their companions into the church in their own neighborhood. The ties of sentiment would have to be of extraordinary strength that would prevent parents from asking for their letters of transfer from their own old church to the congregation which had won their children.

The automobile has upset all these calculations. It is no hardship at all, but a pleasant diversion, to bring the whole family in the old bus down into the city.

ITS SOLUTION—TO CHURCH BY MOTOR

It is right here that the motor car has most profoundly affected the development of the church in the big city. It is obvious that the down-town church has found it easier to remain with the coming of the automobile. The flight of the churches to the suburbs has by no means been stopped, but it has been noticeably checked. The pastor of a widely-known church in Baltimore said that he was glad that he had resisted the suggestion to move from the down-town section a few years ago. He added that it didn't make much difference now in what part of the city the church was located, because his entire congregation was free to attend the church services independently of the trolley service. His opinion was that, by remaining at their present down-town site, this church was able to command the attention of the city in a way that would have been lost, had the church moved to an outlying section.

On the other hand, it is not easy to locate a new church in the outlying

districts with the same degree of confidence as formerly. Indeed, in the more well-to-do suburbs there is an element of danger in establishing a new church enterprise. The church edifice must be in harmony with the buildings surrounding it, which means considerable expense, while, at the same time, there is no assurance that the people of the neighborhood will sever their church ties in other parts of the city to come into the new church organization. The automobile is responsible for this element of caution. A new church in a fashionable suburb is seldom projected nowadays without first making a careful canvass of the neighborhood and ascertaining the wishes of the residents regarding a new church in their midst.

There is a popular impression that the automobile has affected adversely attendance at church service, but it is hard to find evidence to sustain such opinion. People who were interested in the church before purchasing an automobile are apt to continue that interest afterwards, and, as has been pointed out, a motor car facilitates attendance at church by the whole family. It is true that many people drive away from the big city for the week-end, but then it is equally true that people drive into the big city for the same period. It is more often the case than not that the good church member, who drives out of the city on

a bright Sunday morning and returns long after sunset, has attended church somewhere during the day. It may have been in another city a hundred miles from his home. The automobile has created a give and take in this matter of church attendance that just about cancel each other.

The automobile has had its greatest development within the past decade. The churches during that same period, making proper allowance for the demoralization created by the war, have maintained the same rate of growth as in previous decades, showing that the automobile has affected the life of the church very slightly one way or the other. It has compelled the restudy of the problem of locating churches in a given metropolitan area. It has introduced a new element of hazard in the establishment of new churches at the city's circumference. As to the future, it is generally believed that the motor car will prove an instrument of blessing to the church. It makes possible attendance on the part of the invalid and the aged, who without it could not attend public worship. It facilitates the work of the church in caring for the sick and the indigent. While it is to some a temptation, it is to others an opportunity. Increasing study will doubtless be given to the problem of making the motor car a real servant of the church in the coming years.

What the Automobile Has Done To and For the Country Church

By WARREN H. WILSON

Board of National Missions of the Presbyterian Church in the U. S. A.

SO many things are affecting the farmers that it is difficult to measure with precision the impact of one force. But of all the dynamic causes that are changing the aspect of the open country I suppose the automobile may be accepted as the symbol. It is itself a chief agency of change, and it is a channel of the forces of the larger world, a commodity of the city, a means of urbanizing the rural mind, a carrier of the news and a key to the market. It has released farmers from the vegetable existence of the farm. It has made the farm more desirable and valuable. All these have affected the church where farmers worship. But just how much and in what respects we have as yet not determined by measurement. There are churches in Pennsylvania which on Sunday morning are surrounded with acres of automobiles. I know two that have purchased land for parking purposes because more autos attend than horses in the old days. On the other hand, the abandonment of country churches goes on apace, as it did in the nineties, and some of them are disused because they are out of the path of motor traffic.

It was at first said that "the auto was killing the country churches," but I never believed it. The decadence of the open country church began before Elwood Haynes drove his first "horseless carriage" at the World's Fair. And besides the motor has brought people to church whom the horse would never have brought thither. Its influences have been both bad and good for the country church. The

religious forces are probably neither stronger nor weaker because of gasoline power. I know of no estimate of acceleration of the decay of the old-style country church within the years of motor transportation. The most solid gains as well as continued losses have been registered in the past two decades.

BENEFITS TO CLERGY AND PARISH

In the absence of any measurement of the influence of the motor upon the farmers' church in town and country one has to use observation and judgment. But whatever is said must be stated with the modesty and reserve suitable to a process the end of which is not in sight, its analysis unrecorded. I remember well the first pastor who testified in a meeting of his brethren in Montana to the gospel use of an automobile. He employed it for visiting the remote ranchers "above the ditch" on the semi-dry lands. His experience awakened a sensation. Another pastor in populous New Jersey about the same time purchased a car, to the indulgent amusement of his people, and used it to establish connections, on each Sabbath day, with eight services of worship, covering a wide area aforesaid neglected. I rode with him one Sunday over his circuit. He needed only two sermons, the same number as before, but he had quadrupled his professional efficiency. Not the least of his appeal was in the boldness and energy he showed and the swiftness, the long reach, of his attack upon their attention. How many rides across prairie and mountain have I

enjoyed since that time, by the side of preacher or superintendent! Every year the pace is swifter, the penetration of remote places more surprising. Nowadays the rural minister who has not a motor is a rare man. Even a "summer student," serving as apprentice in his vocation, may buy a car in June and sell it in September, having in the meantime enjoyed his work and served his people well.

When automobiles were first offered in the general market, ministers had already given up owning the traditional "horse and buggy." An assistant in my office, who toured the towns on the Alleghany River about the year 1910, reported his amazement that no pastor in those churches he visited owned a horse, though every manse had a stable, empty reminder of the faithful comrade of former rural ministers. The village church had already at that time lost its hold upon farmers, by reason of changes not proper to discuss here. The time was ripe for a new experience in transportation, and the automobile offered itself—apparently at that time an expensive toy. Then by some magic every minister began to buy a car. Like the farmers they served, they complained of poverty; but they found the means somehow to purchase vehicles, the cheapest of which was purchased at a cost twice the purchase price of horse and buggy new and of the best. I suppose, therefore, that one of the effects of automobiles upon country churches has been the supply of a needed medicine for rural meanness of spirit, a stimulant of better consumption. It has put the church upon a basis of better pay for the pastor's services, in that both he and his officers find that to "buy a Ford" does not impoverish them but increases their profitable efficiency.

It is of all the consumers' goods the most swiftly consumed. I suppose, therefore, that it has been an eloquent advocate of a better way of life. Farmers, who had been producers only, became in respect to one product eager consumers. They have a motive for approving the same sort of consumption in their ministers. The whole experience of motoring has been, I dare say, a revelation of the need of better pay for preachers and more generous support of the church.

CHURCHES MUST FOLLOW THE HIGHWAYS

It is a commonplace that the motors have demonstrated to conservatives the need of better roads. Their use has made possible a revolution in road-making. The new state and county roads are mobilizing the rural population. Villages that do not now offer satisfactions of the long-repressed wants of farm people are no longer even a stopping place of the automobiles, which carry their owners to the growing towns, where are offered first-class garage service with corresponding grade of moving pictures and street life. The county is being mapped again upon a larger radius of "going to town." In the Northwest, where the villages have not yet won a sentimental dominion of the farm population, this process shows itself in dried-up little hamlets that have ceased to grow, while others, spaced farther apart, are thriving upon the byproduct industries of motor transport.

Churches that are not on the lines of motor travel show uneasiness. Some that were about to expire have now breathed a last gasp unnoticed. While those meeting places upon the new highway, or near enough for convenience, see a future for themselves



to new houses upon the highways. Naturally the village churches have profited by this faith. They were clustered originally in expectation of farmer support and now they live in hopes. If their faith and hope had only the supreme grace of love they would be the most religious institutions in America. In Texas there is a church in Collin County, six miles from each of three villages, which has built a new edifice and a new manse upon the county highway, only half a mile away from its former site. It is the delight of the countryside. Its services are well attended and special occasions are graced with the presence of the old throngs of one to three thousand, who come from far, as their fathers used, to see and meet people of like mind and condition. In Connecticut is an old church on a hill road now almost disused. Only an occasional funeral requires the opening of the padlocked door. But on the proposed motor highway that passes the foot of the little hill there is church service every Sunday afternoon in a community house, beside which the motors have found scanty parking space.

The automobile has sifted the attendance upon rural churches. One does not see so many young men and women there, to whom it provides so proper an expression of their speed and vivacity. Unless the minister is a man able to attract and hold the young they yield to the temptation to go somewhere on Sunday, and the church has a new reason for deploring their alleged irreligion. To the pastor of fertile spirit and contagious religious purpose the automobile brings a throng of young and old. Further, the church which is attended by families in motors is not so attractive to pedestrians as it was, and has a new distaste for those who are still dependent upon the horse

for motive power. The automobile has, therefore, made the country church even more a place of assembly of the middle-aged, and even more aristocratic than formerly.

I saw in western Nebraska the working of this force. We were trying to launch there a church among the ranchers on semiarid lands. Each rancher is possessed of a section of land and, therefore, the houses are on an average one mile apart. At a funeral of a rancher there were ten cars and one farm wagon; and after the services in the shabby little four-room house the coffin was laid across the rear doors of a big seven-passenger car, two men being first seated in the rear seat to watch and steady it. It was securely bound and the procession started for a graveyard fifty miles away. The farm wagon did not offer to follow. There was no place for a horse in that procession, at a speed of sometimes thirty miles per hour over the rolling prairie. The occasion was an impressive comment upon our attempt to maintain a resident pastor and a church so far from a focus of rural habit and sentiment. Soon the pastor moved to town and no other has moved out to take his place.

The automobile is a vehicle for the assembling of people from a wide area at a center and for reaching all the farms of the area with services that center at a convenient point. One would suppose that it would reinforce the village churches, but that is still a question. Only a religious force can accomplish an effect in religious construction. The village has shown in recent decades no new leadership commensurate with the changes going on in city life and in agrarian organization. Village ministers as a rule are convinced that their relations are with the cities, not the farms. So long as

their backs are turned upon the farmers the farmers will turn a cold shoulder to the village church.

SUCCESS OF PARISH ORGANIZATION

There are, however, a few villages in the Middle West, where an agrarian psychology prevails, whose churches are attended by farmers. And on the Pacific Coast the surveys show a marked gain in village attendance by farmers going to church. But generally the religious condition of a farmer is measured by his support of the open country church or the meetinghouse in the hamlet. Until this day it is unfortunately true that as the open country church dies out farmers become irreligious. In this the automobile has wrought no general change.

Seeing this dual effect of motor transportation, a few foresighted religious men have planned what we call the larger parish. In the Rocky Mountain region, at Montrose, Colorado, and at Lingle, Wyoming, are examples of parish organization in which two or three ministers are organized upon the basis of collective service of a wide area; the radius of which is no longer the "team-haul," but the distance a minister can travel between Sunday services,—say ten or twenty miles. These larger parishes serve a scattered population, who have not yet fully "proved up" on their home-

steads, much less on their permanence of residence. They are experiments. In Michigan at Benzonia and in New York at Glens Falls are other instances of parish organization, in which assistant pastors minister to farmers and the dwellers in hamlets, under town and city leadership. The physical equipment of all these plans is the automobile.

In the development of the new vocation of supervision of churches the automobile is an essential. We are beginning to have men of energy and scientific temper in charge of rural church work. These men all own fast, powerful, small cars. They are making speed, in both a geographic sense and a sociological. The hope of the rural church is, in my judgment, with these men. It does not follow that because country people have automobiles they will go to church at a logical—a "strategic"—center. There are many poor who have none, many children who have command of none, and sick who could not drive a motor. The church lives and breathes by its help rendered to these hindered and hampered persons. Until we have covered the country with a system of motor-busses like unto the "kid-wagons" in consolidated school districts, we cannot regard the automobile as a determinant in the organization of rural religion.

Function of the Motor Truck in Reducing Cost and Preventing Congestion of Freight in Railroad Terminals

By T. C. POWELL
Vice-President, Erie Railroad

HISTORY records the failure of man to predict with any marked success the course of future events or of the consequences of any action.

This comment applies with great force to the subject of transportation.

The first railroads in England (and which preceded those in America) were projected with the idea that they would carry freight and not passengers (except in a very minor degree). As a matter of fact they were immensely popular as passenger lines while the freight tonnage fell below expectation!

On the other hand, the first self-propelled vehicle (or steam carriage) operated on the highways of England was a modified stage coach for passengers only, but the public accepted it very slowly and the influence of the owners of the coaches and public inns was sufficient to drive the steam carriage off the highways and into oblivion.

The "Steam Road Carriage" has now become the automobile of today and the auto truck has taken over an immense freight tonnage and can give a service supplementing that of the steam railroads, and which, properly directed, will economize in terminal service for the benefit of all concerned.

The steam railroads of America have never hesitated to assume any transportation burden placed upon them—from handling freight cars of 70 tons' capacity or greater, to running across the continent at passenger train speed and even faster, trains of silk from the Orient worth millions of dollars, de-

pending upon fast schedules to save the owners the cost of insurance and interest charges.

But neither in this country nor abroad can the railroad managements overcome the inertia connected with the handling of freight cars through the rail terminals, if dependent only upon the locomotives as motive power and the limited area of the railroad freight warehouses for distribution! The relief, therefore, must be found in the use of a more mobile vehicle than the freight car propelled by a steam locomotive.

MOTOR TRUCKS TO THE RESCUE

Such a vehicle is the self-propelled motor truck which is of three kinds, *i.e.*, internal combustion or gasoline, electric and steam, the last two being in the minority.

The self-propelled motor truck may be supplemented by "trailers" of equal or greater capacity.

The railroads have realized for years that the cost of real estate in large cities, necessary for the enlargement of terminal yards and station buildings, has become prohibitive; besides realizing, also, that such facilities are so rigid and immovable as to limit their usefulness in developing the business of the community.

The delay in availing of the convenience of the motor truck for terminal service may be partly ascribed to fear of competition on long haul traffic; and motor truck operators must admit that a good deal of their propaganda in

the past has appealed to the prejudice of the shipping public and not so much to their common sense.

Nothing will be gained by attempting to drive out the steam railroad by prejudice.

The governing factors will be *Expense vs. Economy*.

The ultimate design of a railroad steam track yard and a railroad freight warehouse will take into account the following:

1. A location with relation to the business community, which will insure a fanlike collection and distribution of freight by motor truck; such trucks being operated by the railroad company, or by separate corporations under contract with the railroad or by individuals or corporations responsible to the shippers and receivers of the goods.

2. An arrangement by which solid cars of freight of one commodity, or of various commodities for one party, may be placed under cover in such a position with relation to the roadway as to permit easy and quick access by vehicles; prompt loading of such vehicles and immediate delivery to those consignees equipped to receive their goods without delay. In lieu of such facilities on the part of consignees there should be provided storage warehouses to which the various commodities may be transferred and stored ready for subsequent disposition by the owner.

3. The provision for less than car-load consignments is different only in degree, but after a car containing various consignments for different parties has been placed for unloading, there should be an immediate transfer of the contents to a vehicle for delivery to the consignees or to a warehouse located so as to serve the territory in which the consignee is doing business; that is to say, every handling of a package

should carry it closer to its final place of deposit in the hands of the owner.

4. The freight cars so relieved will be available at once, after inspection, for a return load.

5. Now comes the problem of out-bound shipments, which, in the nature of things, is more complicated than in the reverse direction.

The end and aim of any change in the present methods is "flexibility and speed." A waiting vehicle is an abomination!

The method of collecting freight for loading into railroad cars prevalent in London, England, in 1850, was as follows (modernized wording):

A multitude of carts and vans, which serve as a sort of tenders to this department of the railway business, are employed in radiating through every part of the capital, which they sweep over and collect such parcels of goods as are individually too small to be sent by their expeditors by separate wagons. These, with the larger and heavier parcels brought by independent drays and wagons, arrive without interruption during the day and a great part of the night at the station of departure, on the platforms and under the sheds of which they deposit their loads. They are received by the loading porters, and way-billed by clerks stationed on the platforms for the purpose. The smaller parcels, which are extremely numerous, are rolled in barrows and trucks, after being sorted and classed according to their destinations and qualities, to the freight cars in which they are to be transported. The larger articles are seized by cranes, lifts, capstans and other machinery, much of which is worked by steam power, and expeditiously laid on their respective cars, having previously undergone the process of weighing and waybilling.

I see no reason why this description of 74 years ago should not apply to a railroad terminal of 1924 operated with the co-operation of the shippers of today.

6. Such delivery direct to the railroad freight stations and team tracks

should be supplemented as in the reverse direction by intermediate warehouses and "off line statics" so that the "extremely numerous" small parcels may be delivered into the custody of the railroad by trucks operated by, or under control of, the shipper, in order that the shipper's premises may be relieved as frequently as possible.

This plan also enables the railroad companies to unite in a common convenient receiving depot which, as above described, may also be operated as a common delivery or transit station on inbound freight.

The experience of the Erie Railroad in New York demonstrates the practicality of this plan.

Distribution of Gasoline and Methods of Price Control

By HUSTON THOMPSON

Washington, D. C.

AT the present time about 85 per cent of the total quantity of gasoline consumed in the United States is sold to the retailer or ultimate consumer either by the company manufacturing it or by an affiliated or subsidiary concern. The remainder is purchased by wholesalers F. O. B. plant from the smaller refiners. Gasoline is distributed in wholesale quantities in tank steamers, tank cars, motor tank-trucks and horse-drawn tank-wagons. The large refiners distribute gasoline from their refineries to the principal marketing centers in tank steamers and tank cars. Tank steamers are used extensively for coastwise shipments from refineries on San Francisco Bay and in southern California to the large markets of the Columbia River and Puget Sound regions. During the last two years millions of gallons of gasoline produced in California have been transported by tank steamer via the Panama Canal to the Atlantic Seaboard. Daily entire trainloads of gasoline in tank cars, destined for large consuming centers, leave the important refining regions of the Rocky Mountain and Mid-Continent oil fields and the large refineries farther east.

Adequate storage facilities are maintained in the large cities along the Atlantic, Gulf and Pacific Coast and at important interior refining points from which the requirements of the retail dealer are supplied. The seasonal demand for gasoline necessitates the accumulation of large stocks during the winter months in order to meet the requirements of the heavier spring, summer and autumn trade. The bulk of the retailers' supply of gasoline is distributed by tank-trucks or tank-wagons from storage tanks located near railroad sidings. Tank-truck and tank-wagon drivers usually sell at retail to anyone on the route who will buy five gallons or more at a single purchase.

The great bulk of the gasoline used as a motor fuel for automobile and other internal combustion engines is a blended product. Formerly only "natural" or "straight run" gasoline, obtained by distilling petroleum by the application of heat at atmospheric pressure, was sold for motor fuel purposes. But in recent years, due to the tremendous increase in gasoline consumption, large quantities of "casing head" gasoline, extracted from natural gas, and of "cracked" gasoline, produced by a number of cracking processes applying

very high temperatures to gas and fuel oils while under superatmospheric pressure, have been produced to supplement the supplies of natural gasoline. These products are blended by the manufacturer before being sold to the trade. The yield of gasoline has been increased greatly by the widespread use of cracking processes. A refiner using Mid-Continent crude can recover from 45 to 55 per cent of gasoline from a barrel of crude petroleum when pressure stills are used, as compared with about 25 per cent from ordinary distilling methods. Improvements in internal combustion engines should soon make possible the utilization of a still larger yield of serviceable motor fuel than is now obtainable in the form of gasoline from cracking processes.

HOW GASOLINE IS SOLD

The gasoline business of this country is conducted by two general types of companies. The first includes the large integrated companies with extensive investments which are engaged in several branches of the industry. Indeed many of them, either directly or through subsidiaries or affiliated companies, are engaged in producing, transporting and refining crude petroleum and in marketing gasoline both at wholesale and at retail. The other type of companies is those engaged in but a single branch of the industry such as wholesaling or retailing.

There are four kinds of gasoline prices: (1) refinery prices, at which gasoline is sold to wholesalers and jobbers, in tank car lots; (2) the tank-wagon price, which is the wholesale price to retail dealers such as garage men and service station operators; (3) special prices to large consumers, which are usually one cent over the wholesale price; and (4) the retail or service station price, which is the price charged the ultimate consumer.

Refinery sales are made both at current or spot prices and on contract. It is a common practice at the present time for wholesalers and independent refiners to base their contracts upon the tank-wagon (wholesale) price of the Standard marketing company in the territory to which shipment is made. Fixed differentials between the wholesale and retail prices of gasoline are maintained by the large gasoline marketing companies. This margin is two cents per gallon in some sections of the country and three cents in others. At some points where the large marketing concerns do not maintain service stations much larger differentials are added; for example, the Federal Trade Commission discovered cases in Montana in which retail concerns (engaged only in intrastate trade) sold at from five to ten cents per gallon above the wholesale price,¹ and the Commissioner of Agriculture for the State of Minnesota reported on November 14, 1923, that:²

The ordinary gross retail margin is two cents per gallon on gasoline, though a spread as great as eight and ten cents has temporarily existed.

The failure of wholesale and retail dealers to pass the benefits of price reduction on to the consumer has led to the establishment of co-operative retail stations in different sections of the country and to the sale of gasoline by the state or municipality in other places. After a careful inquiry into conditions in Minnesota in the summer of 1923, the State Commissioner of Agriculture reported that with one or two exceptions "all retail dealers took advantage of the extremely high prices prevailing during the summer of 1923," and that

¹ *The Petroleum Trade of Wyoming and Montana*, p. 1.

² Bulletin No. 30, *Report of Investigation of Gasoline and Kerosene Prices and Methods of Distribution*, p. 15.

"it is apparent that the motor vehicle owner has no relief or protection against excessive gas and oil prices under current conditions in Minnesota except through the organization and maintenance of co-operative stations."³

BEFORE AND AFTER DISSOLUTION

In order to make clear the present situation with respect to price control in the sale of gasoline, it is necessary to call attention to certain facts with respect to the dissolution of the Standard Oil Company. At the time of the Standard Oil dissolution, effective in December, 1911, the Standard did 85 per cent of the total domestic business of the United States in refining and marketing petroleum products. The few independent refiners and marketers then in business were allowed to exist merely by sufferance to give an appearance of competition.

The only branch of the petroleum industry in which the Standard did not do the bulk of the business was that of production. As the crude-oil producing business is a hazardous one, the Standard was willing to allow independents to develop production, the bulk of which it purchased at the oil wells at prices announced or posted by its purchasing agents.

It is still customary in the business and financial world as well as in general practice to distinguish between two groups of interest in the petroleum industry; one group includes companies which were subsidiaries of the Standard Oil Company (New Jersey) at the time of the dissolution and of companies since acquired by any of the Standard units, while the other group embraces all other companies, which are commonly referred to as "Independents." While in this discussion the Standard companies are frequently referred to as

a group, it should be borne in mind that since the dissolution each unit has maintained a separate organization, each having separate officers, directors and refining, transporting and marketing equipment.

Since the dissolution the generally prevailing prices of gasoline and other petroleum products have been those named by the several Standard marketing companies, notwithstanding the fact that the proportion of the business done by independents has steadily increased until the percentage is now about three times as great as it was in 1911. Large independent companies such as the Gulf Oil Corporation and the Texas Company east of the Rockies and the Union Oil Company of California on the Pacific Coast, are now as large as some of the larger Standard units.

MAINTAINING PRICE CONTROL

The maintenance of this price leadership in practically all parts of the country has been chiefly due to the fact that, with only minor exceptions in recent years, the different Standard units have not competed with each other in the purchase of crude nor in the sale of gasoline at retail, but in these respects have apparently continued the harmonious business relationships of predissolution days. For example, prior to the dissolution, the Prairie Oil & Gas Company in the Mid-Continent Oil Field, and the Seep Purchasing Agency in the Appalachian Field, acted as the crude oil purchasing agents for several Standard refining companies. This practice was continued unchanged for a number of years and still exists with some modifications, with the result that there has been little price competition between these Standard refineries in the crude market. Likewise the Standard pipeline companies have practically served

³ *Ibid.*, pp. 14-15.

only Standard refineries, notwithstanding the fact that in 1914 the United States Supreme Court upheld the constitutionality of the Hepburn Act declaring interstate pipe lines common carriers. The use of these pipe lines by Standard companies, while eastern independents were at first denied their use and later prevented from using them through onerous shipping requirements, probably has been the most important factor in enabling the Standard companies east of the Mississippi River to maintain their dominant price leadership.

As the chief element in the cost of producing gasoline is the raw material—crude petroleum—the harmonious relationships of Standard companies enabled them to secure their crude on more favorable terms than their competitors. The proportion of the total cost represented by the cost of crude varies with the price of the crude—the higher the price the greater is its percentage of the total cost. Consequently, the development of eastern independents, being prevented from availing themselves of a cheap and abundant supply of crude from the Mid-Continent Field on equal terms with Standard plants, has been stunted and they have not become an important factor in competition. The only independents that have become large factors in the petroleum business are those having their own pipe line systems, such as the Texas and Gulf companies. An inquiry into petroleum refining costs made by the Federal Trade Commission, which included the costs of five large companies running 90 per cent of the total quantity of crude petroleum refined in the Pacific Coast territory, shows that in 1919 the cost of the crude represented about 80 per cent of the total cost of refining when the average cost of the crude was 95

cents per barrel, but that the proportion was over 90 per cent when the average crude cost was \$1.63 per barrel.⁴ East of the Rocky Mountains, particularly near the Atlantic Seaboard, the proportion would be still higher. At the present time pipe line charges from the Mid-Continent Field to the Atlantic Seaboard constitute about 50 per cent of the delivered cost of the crude, consequently they are an important factor in gasoline costs.

In 1916, the Federal Trade Commission issued a report which called attention to the following important facts: (1) that "pipe lines are as fundamental a factor for the oil industry as the railroads are for agriculture"; (2) that the pipe line rates then charged were exorbitant; and (3) that competition in the petroleum industry would be promoted if the smaller refiners were enabled to use the existing lines under reasonable rates and equitable shipping conditions.⁵

The fact that small independents have not been able, generally speaking, to use the large interstate pipe lines as common carriers has resulted in the location of the vast majority of their refineries in the immediate vicinity of the large oil fields and thus prevented them from becoming a competitive factor in the large consuming centers, because it is much cheaper to transport crude petroleum by pipe line to such centers than to refine it in the oil fields and transport the gasoline by rail in tank cars. The only sections of the United States in which a reduction in crude prices is surely and promptly followed by a reduction in gasoline

⁴ Report on *The Petroleum Industry of the Pacific Coast*, Part I, p. 188, and Report on the *Price of Gasoline in 1915*, p. 15.

⁵ *Pipe Line Transportation of Petroleum*, pp. XXVIII and XXXII.

prices is in Oklahoma and Texas, which are near these large independent refining centers.

The continued harmonious business methods of the former members of the Standard Oil combination is further evidenced by the fact that they have, with only two important exceptions, continued to market gasoline at retail in the same way as before the dissolution. The Standard marketing territories, in almost all cases, arbitrarily follow state lines. In some sections the marketing territory is confined to a single state, as in the case of the Standard Oil Company of Ohio and the Standard Oil Company of Nebraska, while in others the marketing territory embraces a number of states, as in the case of the Standard Oil Company (Indiana) which sells gasoline at retail throughout Michigan, Wisconsin, Minnesota, North and South Dakota, Iowa, Illinois, Indiana, Missouri and Kansas.

POWER OF THE STANDARD GROUP

During the last few years some of the Standard group have exhibited a greater degree of independence than formerly with respect to this phase of their business. The most important example is that of the Atlantic Refining Company, which has extended its wholesale and retail gasoline and kerosene business into Massachusetts, Rhode Island and Connecticut, originally the marketing territory allotted to the Standard Oil Company of New York.

Two reports of the Federal Trade Commission describe these Standard marketing territories.⁶ The Commission's report on the *Price of Gasoline* in 1915 shows that arbitrary price differences frequently existed in neighbor-

ing towns located in different states. This was strikingly illustrated in the case of towns in the states of Idaho and Washington, the former in the territory served by the Continental Oil Company, and the latter by the Standard Oil Company (California). The same situation existed in the border towns of Indiana, Ohio and Kentucky, which are served by the Standard of Indiana, Standard of Ohio and Standard of Kentucky, respectively. It was found that the inequalities in prices in such cases were often two cents per gallon and ranged as high as eight cents.

It is the power of the various Standard companies to dominate the situation which prevents freedom of competitive action. In testimony before the Committee on Manufactures of the United States Senate in 1922 and before the Federal Trade Commission in 1916, representatives of the different independent companies and organizations called attention to the fact that they feared the Standard's power. For example, R. L. Welch, then general counsel for the Western Oil Jobbers Association, stated:⁷

I don't believe there is a jobber in our organization who can survive who does not follow the market of the Standard Oil Company, and so far as I am concerned I would advise them to do so.

When asked whether the members of his organization sold at higher prices than the Standard, Mr. Welch testified:

Occasionally here and there some one has risen above it, but whenever he has done it he has lost enough gallonage to get his lesson.

The Federal Trade Commission's inquiry into competitive conditions in the Pacific Coast territory shows that following a period of keen competition

⁶ See reports on the *Price of Gasoline in 1915* and the *Pacific Coast Petroleum Industry*, Part II.

⁷ *Federal Trade Commission Report on the Prices of Gasoline in 1915*, p. 157.

in 1914 and early 1915, during which a number of independents went bankrupt, the independent marketers organized an association, and that:⁸

Since September, 1915, members of the association agreed among themselves to maintain the prices announced by the Standard Oil Company (California), and in order to maintain these prices they adopted the same differentials and classifications of customers as were used by the Standard. They listed and, pursuant to agreement, refused to sell to retailers who sold below the agreed price until such retailers maintained list prices.

This was still the situation when the Commission completed its inquiry in 1921. It is interesting to note in this connection that the records of this association did not disclose any reference to price discussion, but that a very complete record of their price agreements was found in unsigned memoranda. At a hearing before the Commission the secretary of the association stated in response to a question by Commissioner Murdock that after adjourning the regular meetings—⁹

They go out arm in arm. The chances are they haven't seen each other for a week. After the crowd is outside they do the real thing they are interested in.

The harmonious relations which continued to a marked degree for a dozen years after the Standard dissolution, resulting in a continuance of monopoly control of the entire petroleum industry, are undoubtedly due to the interlocking of stock ownership resting in the hands of a few persons.

The dissolution decree allowed the stock in the subsidiaries of the Standard Oil Company (New Jersey) to be

distributed ratably among the stockholders, the provisions relating to distribution of stock being as follows:¹⁰

But the defendants are not prohibited by this decree from distributing ratably to the shareholders of the principal company the shares to which they are equitably entitled in the stocks of the defendant corporations that are parties to the combination.

The shares in each of the subsidiary companies which were formerly held by the Standard Oil Company (New Jersey) were distributed ratably among the stockholders and the control of each subsidiary passed from the holding company to the persons who had dominated the Standard Oil combination.

Testimony before the Senate Committee on Manufactures during 1922 disclosed the fact that certain formerly important stockholders had disposed of their holdings in some of the larger Standard units; and that within the last two or three years the stock has become quite widely distributed. For example, it was testified that John D. Rockefeller, Sr., was no longer a stockholder in the Standard Oil Company (Indiana) and certain other Standard units. The lessening of the degree of interlocking stockholdings by the group of capitalists formerly controlling the various Standard units may account for the fact that in certain phases of the petroleum industry some of the Standard units are now displaying more independence; for example, the Standard Oil Company of Indiana and the Standard Oil Company of New Jersey no longer purchase all of their crude petroleum in the Mid-Continent oil field from the Prairie Oil & Gas Company.

The greatest menace to future improvement in competition in the sale of gasoline and other petroleum

⁸ *Pacific Coast Petroleum Industry*, Part II, p. X.

⁹ *Federal Trade Commission Report on the Pacific Coast Petroleum Industry*, Part II, p. 193.

¹⁰ 173 Fed. Rep. 177, 199, Sec. 5.

products appears to be the establishment of greater control in certain Standard marketing territories through the acquisition of independent interest. For example, during the past three years the Standard Oil Company (Indiana) acquired the Midwest Refining Company, which was already the dominant factor in production and refining in the Wyoming oil field. Notwithstanding the fact that the Wyoming and Montana producer of crude petroleum receives a lower price for his product than producers in the Mid-Continent and other oil fields east of the Rocky Mountains, the consumer in Idaho and Montana is forced to pay a higher price for gasoline

because the Standard charges higher prices for shipments into those states than for shipments into territory tributary to the independent refining center at Tulsa, Oklahoma.¹¹

The situation with respect to price control in the sale of gasoline was summarized in a recent report of the Federal Trade Commission as follows:¹²

Price initiative today seems to be left generally to the Standard companies, and competition is apparently more directed to developing facilities for getting business than in seeking to obtain it by underselling.

¹¹ Federal Trade Commission, *The Petroleum Trade in Wyoming and Montana*, p. 2.

¹² *The Advance in Price of Petroleum Products*, p. 53.

The Billboard and the Public Highways

By J. HORACE MCFARLAND, L.H.D.

President American Civic Association

NO one who uses the improved highways that the automobile has made necessary in America can have failed to take cognizance of the many advertising signs that border these better roads. In fact, the "billboard," as it has come to be universally called, whether the sign be painted on a building, or raised above it, or elsewhere displayed in the public view, is an almost unfailing evidence that the highway from which it is seen is a much traveled road.

It is scarcely here in point to discuss the origin of the billboard, beginning in legal announcements, familiarly known at first to the elder citizens of America through the circus poster. It is in point to mention its tremendously rapid growth and to call attention to the significant fact that the billboard is the one method of advertising in the civilized world against which many legal enactments have been framed,

upon which numerous court decisions have been made, and in relation to which large bodies of citizens have attempted and are continuing vigorous adverse action. The billboard alone seems to require regulation, repression and possibly even abolition—at least in some locations—according to the thought of judges, editors, highway authorities and civic organizations.

ADROIT PLEAS AND ARGUMENTS OF PROMOTERS

That the billboard "industry," as it has come to be called, is extensive, has been made apparent recently in pleas for its continuance made by some of its promoters, who justify its existence seemingly more by the employment it gives and by the items of commerce it uses, than by any value it is presumed to render to those who pay for it.

For example, a well-meaning woman who has been shrewdly won to its de-

fense by its astute promoters, has just written me of the pathetic situation she believes might confront a hundred young women who are clerically employed in the office of one large concern in New York, should the growth of the industry be interfered with. The controlling authority of another New York and national billboard-erecting company boasted to me not long ago that his organization "purchased more paint and more electric light bulbs than any other concern in America," letting slip at the same time the information that one electric sign on Madison Square brought to his company a revenue of \$5,000 monthly, with a limitation of not more than one year of occupancy to any single advertiser. He raised the same plea that the woman in question extended to me, in saying that he employed seven thousand men, and that some rolling-mills producing sheet steel would undoubtedly be idle if his business was not extended, while many printing presses might cease to run under the same condition. He claims to do a business in billboards of \$27,000,000 annually.

WHY THIS INTERFERENCE ?

It may therefore properly be inquired as to why there should be this interference with the billboard as a means of advertising in a nation in which advertising has confessedly been beneficial in building up business and improving living conditions. Very plaintively the big billboard men and their astute attorneys will ask the same question. Did they not contribute invaluablely to the national defense when they provided space—at a price—for Liberty Loan announcements? Have they not recently adroitly entrapped a President into the issuance of a quasi-commendatory letter on the occasion of a meeting of one of their national organizations? Was

not their eruption of religious posters several years ago an evidence of their high virtue? Have they not banned—just about two jumps ahead of legal action—all questionably decent advertising?

WHY THE PUBLIC OBJECTS TO THE BILLBOARD

The basic reason for public objection to the billboard has been aptly phrased by one critic, who says that "It sells the eyes of the public" without the consent of the public, differing in that respect completely from any other method of advertising. Only the blind man can avoid seeing the billboards along the highways, day or night, for the recent enterprise of illumination makes the billboard more glaringly obvious at night than under the light of the sun.

This major reason for objection has many divisions. One of these is that it is the obvious purpose of the billboard-erecting concerns not only to force the user of the public highway to see the announcements displayed, but to use the vast public expenditure for bettering these highways for private advantage without any or with but little compensation of any sort to the paying public.

An example may be cited in a certain twenty-mile stretch of new concrete road in northern Pennsylvania, leading along a lovely stream up through wood-covered hills to a summit of more than a thousand feet higher, and giving access to scenery of real magnificence. The million-dollar cost of this road has been taken advantage of by a hundred great billboards, besetting it always at points of scenic attraction, as when the road turns, and in one particular case involving the erection of a tremendous red sign advocating the purchase of Hood tires, right where one must

seemingly run into it crossing a bridge over the beautiful watercourse which gives name to the valley.

It is urged that these billboards are enforcing upon the highway erected at the public expense what the lawyer calls a "servitude," not contemplated at all in the relation of the highway to the abutting property, despite the fact that the billboard, at least in Pennsylvania, must be—save for the tens of thousands of "sniping" signs illegally placed—always on private property. If a property owner erects a building upon his land facing the public highway, whether or not that building brings him direct revenue, the tax assessor at once takes cognizance of it as an "improvement," and he pays in taxes on increased valuation. Not so for the billboard, which, although it does bring revenue to all concerned except the "poor fish" who pays the bills as an advertiser, almost wholly escapes taxation.

Another objection properly holding against the billboard along the highway is its continual interference with the convenience and safety of the passing motorists. Only when forced off does the billboard abandon a location that may have obscured a turn or a railroad crossing, or flanked a school so as to keep out of sight the children playing upon the highway. Constantly also the smaller signs coming within the "billboard" designation confusingly obtrude themselves to divert attention from the needed and most desirable road signs directing the passer-by on his way. Indeed, right here it does seem as if in the interest of our enormously increasing traffic all billboards visible from the public highway, in their diversion of attention as well as in their actual interference with safety, might properly be declared to be dangerous nuisances.

No stress need be laid on the inter-

ference by the billboard with the beauty of the scenery in which it is placed, because that has been the main count in the indictment against it, and I have yet to meet a passing motorist who is other than aggravated at that interference. It is in point to recite the loss of dignity on the road and in communities which is in evidence when, as until recently was the case, great billboards hugged close to the National Capitol. The billboard men are ambitious, as was apparent when I read several years ago an announcement in the advertising part of a New York surface car that "The moon as a billboard would be at a discount compared with the service we offer." When I saw the historic majesty of Lookout Mountain, near Chattanooga in Tennessee, punctured here and there with great signs advertising various patent medicines, I could not feel that those who erected these signs and those who paid for their erection were much less than traitors.

In the development of the past few years it has been made apparent that the billboard as an advertising device is a parasite upon other forms of advertising, which neither take advantage without compensation of great public expenditures nor force unwilling attention. The value of billboard advertising can hardly be successfully traced, and it almost invariably depends on operating with other forms of advertising that may bring the profitable results for which it claims credit. Being as it is the only form of advertising legally restrained and regulated and socially objurgated, as I have above noted, it seems now to be rapidly becoming a method of showing the passing motorist what *not* to buy, rather than otherwise.

While its major victims are the public it offends, its cash-paying victims are the advertisers it deludes. None of

these would ever spend money to intentionally defeat sales of their particular products, and yet the excesses of outdoor advertising committed by the billboard are rapidly tending to accomplish just that result. For example, I know of one man in Florida, himself an active and vigorous advertising business man, who carries in his car a short crowbar, with which he regularly tears down signs erected during the day along the pleasant highway that takes him home in the evening. Further, he has equipped several of the trucks he uses with proper lengths of wire rope, and in some way these seem to get entangled with the larger signs so that they do not stay up! This man declares that he has a right to see the beauty of the landscape, and he proposes to maintain it by this sort of force, against which so far no billboard man has been willing to attempt legal action. What folly it is for other business men to pay money for the erection of signs thus being destroyed to disadvantage to all except the exploiting company that does the erecting!

I have been told of another proposition, which is that the outraged users of the public highways, passing over the roads they are helping to pay for, be provided with a small spraying machine charged with a suitable liquid to be used to successfully deface the obtruding signs that interfere with the safety and the pleasantness of the highways. Of course this would be an illegal intrusion on private property, but I doubt whether any billboard-erecting concern would dare to prosecute those who might make this attempt to protect themselves, for the reason that it would be necessary to show value in these advertising signs, and that value, I think, can be successfully shown to inure only to the exploiting erecting companies, and not to the deluded ad-

vertiser whose money makes possible the continuance of the billboard.

Letters I have recently read from the heads of the great tire-making concerns indicate that these gentlemen are quite dubious as to the value of their announcements enforced upon motorists who may use their tires, by their presence along the otherwise beautiful highways of America. I take it that many thousands of motorists may soon come to my own feeling, that I never need to buy anything whatever advertised in this objectionable way.

LEGAL OBJECTIONS

This resistance to the billboard by extra-legal methods is particularly in evidence in the action of a national committee headed by a most energetic woman, Mrs. W. L. Lawton, of Glens Falls, New York, which committee is causing to be written thousands of letters to advertisers, courteously requesting them to refrain from further billboard advertising, save in selected and segregated commercial locations, so that there may be a little left of the beauty of the land we love.

It is important to note that these efforts are met at once by information as to the existence of long-time contracts obtained by the astute sign-erecting concerns, by which, despite any public objection, they can not only enforce the continuance of their billboards to their own benefit, but can hold up the deluded advertiser to the time limit. It is proper to make warning that, wherever a new concrete road or other improved highway is completed, the representatives of the billboard-erecting concerns are at work obtaining—usually at very trifling compensation—from the abutting property owners the advertising rights which are later to be exploited to the disadvantage of everyone save these companies themselves. In one case

within my knowledge a movement is on foot to protect a lovely Pennsylvania valley by contracting in advance for a term of years for all the advertising rights along the new high-way, in order to keep out the advertiser.

I have above alluded to legal objections to the billboard. For many years enactments have been attempted to restrain, tax, and even to abolish, billboards. Invariably these are ably and vigorously combatted by the attorneys of the billboard-erecting concerns, who, with national organizations amply supplied with funds, are ready to provide the best lawyers to go anywhere, should the spread of their business be interfered with by an attempt at legal control. Yet despite this expensively maintained defense, the public-spirited citizens who have fought in various parts of the country have managed to get into the law of the land and into court decisions some real advances toward restraining the excesses of the billboard.

RESTRICTIVE LEGISLATION

For example, dealing wholly with the billboard as interfering with the public safety, the United States Supreme Court has sustained the decision of the Illinois Supreme Court in the case of *Cusack versus Chicago*, 242 U. S. 526, 1917, which makes it possible in that state, without constitutional changes, to prevent entirely the erection of billboards in residential neighborhoods. It is believed that similar authority exists in most of the states.

Massachusetts has led in authorizing the regulation of the billboard under the police power, just as the saloon was regulated, in a constitutional amendment adopted in 1918, which recites that "Advertising on public ways, in public places, and on private property within public view, may be regulated by law."

It took St. Louis many years to successfully sustain its own effort to very slightly restrain billboard excesses by exercising control under the police power, but the principle was established again in the United States Supreme Court, and also not for æsthetic reasons.

Although courts have shown a disinclination to accomplish physical restraint for reasons of beauty, and this attitude has been taken advantage of by the billboard concerns to "uglify" the countryside, as Dr. Charles W. Eliot puts it, nevertheless the approach to regulation in the interest of retaining beauty is proceeding. For example, a decision was handed down by the Supreme Court of Minnesota, in which the learned judge said, "It is time that courts recognized the æsthetic as a factor in life." Other courts, particularly in California, have definitely spoken in the same direction, and it is believed that if the issue was joined and the case intelligently fought, many decisions would come to recognize the right of the eye to protection at least to the same extent as protection is now given to the ear and to the nose.

But at present legal restraint of the billboard can, it is believed, be accomplished without reference at all to the offense to the eye which it usually constitutes. There is no question as to the control of billboards by the police power. The power to tax is also established, and there are good lawyers who insist that this power may be exercised to the point of abolition, though there also are available court decisions to show that any tax other than that relating to inspection is held to be "unreasonable."

It is a mournful fact that existing laws are not availed of. In Pennsylvania, for example, as well as in the great state of New York, no sign can legally be maintained on public prop-

erty, whether it be in the possession of the state or any community within the state. Nor can any sign be erected on private property in Pennsylvania—aside from required legal notices—save by previously obtained written consent of the owner or tenant. The penalty for violation of this act—a fine of not less than five dollars nor more than twenty dollars—would, if enforced in Pennsylvania alone on any one day, mulct obvious offenders in all the cities and on most of the highways by not less than five millions of dollars. Further, any sign so maintained is declared in Pennsylvania to be a nuisance, and as such may be abated (by removal) by any citizen.

In view, however, of the increasing intrusions of the billboard along the main-traveled highways of which we in America are beginning to be proud, it is in point to suggest inquiry into the possibility of further restrictive legislation. It has been proposed in one case, for example, to consider that any sign which may be visible from any highway maintained in whole or in part by the state, should be under state control for safety purposes, and that a permit be required from a centralized state authority for the erection of such sign, with various restrictions as to size, location, and particularly as to designation of the person responsible for it. There is no doubt that such an enactment could carry a liberal fee for inspection and licensing. There is doubt in the minds of some who dislike billboard intrusions as to the propriety of recognizing the billboard by licensing it at all, but it would seem as if this point of view was rather academic than practical, for no legislature or Congress could or would as yet pass, and no court could or would as yet construe as constitutional, an enactment absolutely wiping out billboards in whole or in part.

Another approach is considered feasible by good lawyers. It is through an instruction to the taxing authorities of every civil district to consider a billboard of any sort as an "improvement" in the eye of the law, to be assessed for taxation as other improvements are assessed, this tax relating to the property as a whole, and not to the billboard as such, and being not less per acre than a minimum sum stated in the act. Such an enactment would make the farmer who knew about it think twice before he endangered the assessment on his property by yielding to the blandishments of the billboard promoter.

Many direct taxes on billboards have been attempted, and some are constantly imposed. If they can be called "reasonable" in the eye of the average judge, they will hold, but if, as occurs when someone endeavors to attach a tax of five dollars per square foot, they can be termed "confiscatory," they do not hold against the acute and able defense immediately occurring through the national billboard organizations. The right to regulate established by the Massachusetts constitutional amendment is believed to inherently reside in most state constitutions, and thus under the state police power and for the public safety would, it is believed, warrant restriction as to height and extent, as to location, and as well a definite tax per square foot per year or portion thereof, to be made evident by a well-displayed tag or other announcement of minimum size visible to the passing motorist.

Billboards are now required in many instances to be of noninflammable material and to be strongly erected sufficiently above the ground to prevent the commission of nuisance or the hiding of criminals in connection with them. Most of the billboard promoters have abandoned the silly plea that

the billboard hides something dirty or ugly, for it is obvious in increasingly sanitary America that we do not want to hide anything unsanitary or dangerous, but to bring it to light and remove it.

One proposition has been that coupled with the state regulation of billboards visible from any highway be a proviso that if the billboard is faced *away* from the highway, no tax or regulation is necessary. This somewhat humorous suggestion would at once put upon the billboard men, if it could be enacted, the onus of proving that the value of the billboard was in its view from the public highway to the building and maintenance of which it had not contributed at all.

"UP TO THE PEOPLE"

After all, James Bryce was completely right when he insisted that in the United States public opinion is the supreme power. Public opinion can restrict, and even abolish, billboards, through influence upon those whose money has kept them in existence and upon those who make laws to restrain them. The important thing, therefore, is for anyone who reads these words and is interested in interfering with the scenic and social fallacy of the bill-

board, to himself act in ways that will be apparent. The advertiser will get off the billboard when he is convinced that it does not pay, and the law-maker will be prompt to tax and restrain when his public demands that action.

It is, as is everything in America, "up to the people." If we do not want billboards we do not need to have billboards. If we are willing that they shall exist in restricted and condensed form in segregated commercial locations, as in my opinion they might, then in such publicly determined locations they can take the position they have in some parts of Europe, and do just as well or better for the advertisers who pay. It is one of the ironies of billboard locations that they are never permitted to exist near the usually palatial homes of the men who have grown wealthy through exploiting them. The "Coca Cola" man has kept them entirely away from a great residential section he has promoted near Atlanta! It is the defenseless poorer citizen who must endure them. In many cities the smaller signs are a clear evidence of civic decay, as the multifarious signs usually found on stables, outhouses and decrepit buildings make plain.

We can reduce the billboard nuisance if we want to. Do we want to?

The Taxicab—Its Service and Regulation

By WILLIAM A. SCHNADER

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IN many respects taxicab service is distinctly different from that furnished by any other class of common carrier.

The most important difference is that taxicabs do not travel over fixed routes or between definite points. For the time being, the person hiring a taxi-

cab dictates where it shall go, and if he desires, by what route. This is a privilege which is not enjoyed by the patron of the steam railway, the electric railway or the bus line. All that the patron of these classes of utility can dictate is where he—the patron—will go.

The taxicab patron can hail a cab on

the street and be driven to the door of his home, his place of business, the theatre or to any other point to which he may desire to go. Indeed, in America, he may telephone for a cab and have it call for him wherever he is, and take him to his exact point of destination. This latter service is a luxury which is not afforded to taxicab users in Europe except in rare instances.

Another distinctive difference between the taxicab and other classes of common carrier is that, generally speaking, the taxicab fare is based upon the mileage traveled by the vehicle regardless of the number of passengers carried. It is true that some taxicab companies charge a basic mileage rate for one passenger and add a nominal charge per capita for additional passengers. This practice has, however, been recently abandoned by the largest companies in Chicago and Philadelphia. It never prevailed in New York. The payment of "extras" is not popular with the public, and the flat mileage rate regardless of the number of passengers will very soon be practically universal. Of course companies imposing an extra charge for additional passengers can afford to charge a lower rate of fare per mile; but the public seem to prefer the higher rate per mile without "extras," rather than the lower rate per mile with "extras."

Another difference between the taxicab and other forms of public conveyance is that in every case the entire cab is hired for the trip, whether the person hiring it be alone or accompanied by one or more persons. Even though the capacity of the cab be five persons, one person may lawfully be its exclusive occupant regardless of the fact that there may be scores of persons waiting for service at the same point at which the one person entered it. Except for traffic delays, the taxicab normally makes "non-stop" trips from the

point of origin to the point of destination.

The differences between the taxicab and other classes of common carrier make it clear that the taxicab is not a competitor of any of them except to a very casual degree. As a matter of fact, instead of competing with the steam railway and the interurban electric or bus line, the taxicab supplements these services. It carries the passenger with his baggage from the railway or interurban station to his home or hotel, and *vice versa*. And the disparity between the taxicab fare and the street railway or city bus fare is so great as to preclude any thought of serious competition between them.

We have already mentioned the fact that in America the taxicab patron may call for a taxicab by telephone and have it come to his door for him—a service which has not hitherto been afforded to taxicab users in Europe. This important development of the American taxicab service accounts in part at least for the higher cost of taxicab service in America.

Few of the patrons of an American taxicab company realize what it means to the taxicab operator to afford a service subject to telephone call, particularly in the larger cities.

To receive telephone orders in a large city, the taxicab company is obliged to have from twenty to fifty telephone trunks running to its private exchange; and to record the orders a correspondingly large number of receiving operators must be on duty day and night. These operators record the name of the patron, the address to which the cab is to be sent, the hour of the order, and, so that the company may call back if a cab is not promptly available, the telephone number of the patron. This record is made on a card which the operator—if the equipment be modern—drops on a moving con-

veyor to be carried to a chief dispatching operator.

To enable telephone orders to be filled promptly, the taxicab company is obliged to maintain, in a city like Philadelphia for example, from seventy-five to one hundred dispatching stands at which its drivers are instructed to stop if disengaged. From the main telephone exchange to each of these stands the company has a private leased telephone wire—the total leased mileage running into very substantial figures.

To transmit to the various dispatching stands orders which can be conveniently filled from them, a series of dispatching operators must be kept on duty continuously at the main telephone exchange. The switchboards at which these operators work are so arranged as to give to each operator the responsibility for dispatching cabs in a distinct part of the city.

Accordingly when the order cards are conveyed from the receiving operator to the chief dispatching operator the latter must assort them, so as to give each order to the operator in whose territory the cab is wanted. This operator then calls the appropriate dispatching stand and transmits the order to the driver who is "first out" at that stand.

To have a cab at the patron's door only a few minutes after the patron gives his order by telephone, requires efficient and attentive service successively by the receiving operator, the chief dispatching operator, the dispatching operator and the driver. During the "peak" hours and on rainy days receiving operators frequently record as many as one hundred orders per hour per operator. To fill these orders with a minimum of error requires management of a type far higher than the uninitiated would imagine.

Telephoned orders, however, constitute only a fraction of the taxicab

company's business, and only a small part of the taxicab operator's problems. A large part of every taxicab operator's business originates at railway stations, hotels, steamship landings, theatres and other points at which large numbers of people congregate. To have sufficient cabs at these various points and at the same time be able to keep the city "covered" so that telephone orders may be filled requires a trained organization which must be on the alert every minute of the day.

As taxicab charges exceed the street railway and bus rates, the public properly expect a higher degree of attention from taxicab drivers than from street railway or bus conductors. To train men not only to be safe drivers but also courteous drivers is another problem which the modern cab company must solve. Indeed the cab company which does not put courteous treatment of patrons on a parity with safe driving is a relic of by-gone days.

This problem the modern company solves by a combination of methods. In the first place, every man must be carefully investigated before he is employed. If his history is satisfactory, he must be schooled both in good driving and in good manners. For this purpose the up-to-date company conducts a regular "school" which every new employe must attend before he can be entrusted with the company's patrons. The course in this school requires attendance for a minimum of from seven to ten days. But not only must a driver be properly schooled—he must have an incentive to practice daily the lessons he has learned. This incentive the leading companies furnish by paying their drivers exclusively on a commission basis, so that self-interest dictates the giving of satisfactory service. Many companies also share their profits each month with their drivers on a definite basis. This

basis takes into account each driver's record for punctuality, continuous service, safe driving and courtesy to patrons. A merit system enables this to be done. The driver who is commended by a patron for unusual courtesy receives a definite number of merits. If he is guilty of a discourtesy, he loses a corresponding number of merits. If he distinguishes himself neither by exceptional courtesy nor by discourtesy his record stands at par unless he has gained or lost merits for other reasons.

Accident prevention is another serious problem of the large city taxicab operator. Due to increased traffic congestion this problem annually requires greater attention. A large taxicab concern must, of course, avail itself of the methods which have been worked out by the various safety organizations which make accident prevention a specialty; but these methods have been found to be entirely inadequate. Indeed taxicab operators have found it necessary to establish their own system of traffic policing. Every large company has a certain number of "street inspectors" who constantly ride the streets in motor cars for the purpose primarily of detecting drivers who exceed the company's speed limit—which is usually lower than the speed limit fixed by law—and other infractions of the company's driving rules. Some companies divide their cities into zones, assigning to each zone one or more inspectors. These inspectors, of course, assist in keeping the company's various stands supplied with cabs and in otherwise regulating the service; but their main duty is to see that the driving is kept safe to a maximum degree. Rigid discipline for the offender against the laws of safety is absolutely essential to support the work of these inspectors.

So far as regulation of taxicab service is concerned, the problem is more com-

plicated than is the regulation of most forms of public utility. Rates, financial ability to compensate for damage to persons or property, stands, the number of taxicabs to be permitted in any city, unfair competitive practices, and the manner of determining the fare are all proper subjects of regulation. Generally speaking, most of these matters have been left to the local authorities to regulate, although in a few states they come within the jurisdiction of the State Public Service Commissions.

So far as we have been able to learn rates have nowhere been actively regulated by a state commission. Practically every city has an ordinance fixing the maximum rates which may be charged for taxicab service; but almost universally the present-day rates are far lower than the maximum established by ordinance. This is due to the fact that nowhere does a taxicab company have a monopoly as is the case with many other forms of public utility. There is, therefore, active competition as to rates with a corresponding tendency to keep the rates down to the minimum at which business can be carried on profitably. In addition, the manufacturers of taxicabs have made remarkable strides forward since most city rate ordinances were passed; and one of the first essentials in the manufacture of a taxicab is the production of a car which can be operated at a minimum cost per mile.

The matter of financial responsibility of taxicab operators is a difficult one to regulate fairly and equitably. This for the reason that in every city there are many individual operators of taxicabs who own their own cabs and little else. Many of these men formerly drove horse-drawn cabs, and naturally drifted into the taxicab business with the passing of the horse cab. To adopt a scheme of regulation which will properly protect the public in case of dam-

age to person or property by these small operators, and at the same time work out fairly in the case of the large company is extremely difficult. In New York, for example, a state statute requires every taxicab operator to file a bond in the amount of two thousand five hundred dollars per cab to insure the payment of damages due to negligent operation. Obviously a two thousand five hundred dollar bond in the case of the owner of one cab gives the public inadequate protection, while to require a company operating one thousand cabs to furnish a bond in the amount of two and a half millions of dollars is unnecessarily burdensome.

In Pennsylvania, on the other hand, the Public Service Commission exercises jurisdiction to inquire into the financial responsibility of each operator before giving him a Certificate of Public Convenience authorizing him to operate. If the prospective operator is responsible, a bond is unnecessary. If not, insurance or a bond in an amount affording reasonable protection to the public may be required. The Pennsylvania method of regulating this matter is undoubtedly the more desirable from every standpoint.

Stands have almost universally been the subject of local regulation. In some cities ordinances definitely establish taxicab stands at certain places on the public streets, provide how many taxicabs may occupy each stand, and forbid taxicabs while vacant to stand elsewhere. Literal enforcement of these ordinances would render very difficult the filling of telephone orders, as the large company's cabs must necessarily stand on the street in proximity to the company's dispatching stands at which it has telephone connections with the private exchange where orders are received. The result is that these ordinances are always enforced with a certain degree of flexi-

bility. In other cities, the establishment of taxicab stands is left very largely to the police. This method offers less complications to the police in their difficult problem of traffic regulation, as they can move taxicab stands from place to place in harmony with changing plans for avoiding congestion.

The number of taxicabs which may operate in any city is generally unlimited, although some of the larger cities, notably New York, have been obliged to consider municipal legislation fixing a maximum number. In Pennsylvania this subject comes within the jurisdiction of the Public Service Commission. Every prospective taxicab operator must apply for and receive a Certificate of Public Convenience before he can lawfully begin to operate. If there is no public necessity for additional service, the certificate is refused. This, it would seem, is the more intelligent method of regulation.

Unfair trade practices in the taxicab business form an important subject of regulation. Following the example of the largest taxicab company in America—the Yellow Cab Company of Chicago—many companies throughout the country have adopted a distinctive color scheme for their cabs. By consistent advertising they have developed a valuable good will in connection with their respective color schemes. Many unscrupulous individual operators have copied these color schemes thus endeavoring to deceive the public and trade upon their competitors' good will. The courts have in most states protected the public against this form of competition by granting injunctions restraining unfair imitation of this character. This method is, however, unnecessarily cumbersome and expensive. In Pennsylvania the Public Service Commission has taken the position that it will not tolerate practices of this nature, and in a number of

cases has revoked the Certificates of Public Convenience held by offending "imitators." Unfortunately in New York City where this evil is at its worst, there is no jurisdiction short of the courts to protect the public; and the number of simulations is so great that the cost of court action to eliminate the practice is absolutely prohibitive.

The accurate determination of the amount of the fare due at the end of each trip is a matter upon which regulation has been consistently uniform. Whether this matter is regulated by municipal ordinance or by a State Public Service Commission the requirement universally is that taximeters be employed and that they be kept as nearly accurate as possible. The most modern form of taximeter is an instrument constructed very much along the lines of a cash register. It records the mileage traveled by the cab, distinguishing between "pay miles" and "dead miles" and automatically computes the fare due for each trip. At the end of the trip the driver by turning a crank causes the machine to issue a printed fare receipt which he is required to give the passenger. This receipt not only indicates how much the passenger should pay, but enables the company, in the event that the passenger has any complaint or leaves any property in the cab, to identify the driver and the cab.

In addition to the matters which have been mentioned, municipal ordinances frequently require a municipal license for every cab in addition to the state automobile license, and require every driver of a cab to procure a municipal license in addition to the driver's license issued by the state. In the administration of this latter feature a

driver's history is investigated by the municipal authorities before he is licensed and in the event that he is guilty of dishonesty, reckless driving or any other serious offense, the revocation of his license by the city means that he cannot obtain employment as a taxicab driver anywhere in the city. This greatly assists the taxicab operator in maintaining proper discipline so far as safe driving is concerned.

We have frequently referred to certain features of taxicab regulation by the Public Service Commission of Pennsylvania. We have mentioned this Commission particularly because it has gone further in the regulation of the taxicab business than the commission of any other state. The first Public Service Commission to obtain any jurisdiction over the taxicab business was that of the District of Columbia; but a decision of the Supreme Court of the United States construed the Act conferring jurisdiction in such a way as virtually to nullify the ability of the Commission to regulate the industry. In a number of states other than Pennsylvania Public Service Commissions have jurisdiction over taxicab operations, but for one reason or another jurisdiction has not been actively exercised except in Pennsylvania.

It is estimated that taxicabs in the United States carry approximately three and one-half million people per day,—virtually three percent of the population. The taxicab industry has taken its place as an essential factor in the transportation field. As such its proper regulation is entitled to the same careful attention which the regulation of other important public utilities is constantly receiving.

Public Regulation of Motor Bus Service

By DELOS F. WILCOX

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BUS transportation is intimately related to the street railway problem. Since prices went up as an outgrowth of the war, the street railways of the country have been, broadly speaking, in a parlous state. Having been financed for the most part on the basis of monopoly and public necessity, they were in a very poor condition to meet the economic changes effected by the war. Operating costs multiplied, and at the same time the owners were egged on by the example of men in private business and encouraged by the chaotic state of valuation law as developed by the courts, to claim enormous appreciation in the value of their investments, when in fact they were having a very hard time to earn a return, even on the most conservative estimate of original cost.

Street railway material costs have receded considerably from the peak reached during and after the war, but skilled labor still remains at a very high level as compared with pre-war times. Moreover, the cost of construction and reconstruction of street car tracks, as well as the cost of maintenance, is increased by congestion of traffic as the cities grow and motor vehicles multiply.

In the field of operation, power costs are high on account of the high price of coal, of which high freight rates are an important factor, and conducting transportation is expensive on account of the high level of trainmen's wages maintained in recent years. Then, too, regardless of the effects of war, the electric railways have been coming into the period of necessary reconstruction and replacement on a large scale, without having made adequate

provision for depreciation and renewal reserves in the past.

STREET CARS *vs.* AUTOMOBILE

At the same time, the rapid development of the private automobile as a vehicle for business and pleasure has radically changed street railway traffic and operating conditions. Fifteen years ago July and August were peak months for the street cars and summer Sundays and holidays were big days. Now in summer the traffic is far lower than in winter, and every Sunday and every holiday is an off day for street car traffic. For example, the daily average number of revenue passengers carried by the Minneapolis Street Railway in July and August, 1924, was 24.8 per cent below the number carried in the preceding January and February. A study of the monthly load curves on the Twin City Rapid Transit system shows that in 1913 July and August traffic was 4.9 per cent heavier than January and February traffic, but since then there has been a progressive and increasingly disastrous dip in the summer months. In 1923 the Sunday average in Minneapolis was only 260,468 passengers, as compared with 370,939 for Mondays and 425,840 for Saturdays.

Car and passenger counts in Minneapolis taken in July and August, 1924, at seven different points of heavy traffic for both street cars and automobiles, revealed in the aggregate 1,205 street cars and 24,206 passenger automobiles going by. The street cars carried 52,325 people and the automobiles 43,973. It was apparent that the automobiles had seating capacity

sufficient to accommodate all of the traffic carried by both types of vehicles, if the seats could be fully utilized. Of course, the utilization of automobile seats up to 100 per cent is no more feasible than it is to keep the street cars full all of the time. Nevertheless, the figures are significant as an indication of the flexible conditions of urban transportation at the present time. In case of a street car strike, even in a large city, the motor vehicles are already present to enable the mass of the traveling public to make some sort of a shift to get to work and back home again. Great inconvenience still results from the cessation of street car operation, and the public insists on getting the street cars back again, as witness the experiences of Toledo, Des Moines, Bridgeport, Akron and the cities of New Jersey; but riots, bloodshed and business paralysis are no longer inevitable.

The aggregate amount of passenger service rendered by the electric railways of the country remains substantially undiminished; the total street railway traffic represents ten or twelve times as many revenue rides as the passenger traffic on all the steam roads of the country; and the passenger revenues collected by the street and interurban railways come close to a billion dollars a year. Even on Manhattan Island, notwithstanding the congestion of vehicular and pedestrian traffic, and notwithstanding the multiplication of underground and overhead rapid transit facilities in Greater New York, the surface street car lines, long regarded as decadent, still carried 376,595,381 fare passengers in 1923, which is only slightly less than the maximum they ever carried in a single year.

Experience everywhere in the United States up to the present time indicates that private automobiles and competitive jitney and motor bus transporta-

tion can do the street railways an immense amount of harm, but that in the larger cities at any rate they cannot now supplant electric railway service as a convenient and necessary public utility. Thus we have a condition arisen which calls for a radical readjustment or expansion of public regulation in the field of urban and interurban passenger transportation. If street railway rates are to be regulated by public authority, if the standards of street car service are to be maintained, if extensions of service are to be required, if rehabilitation of worn out car lines is to be insisted on, if special taxes, and public obligations, calling for the expenditure of large sums of money, are still to be imposed on the street railways, the public necessarily must undertake to regulate and limit the direct competition to which the street railways are subjected by other instrumentalities of mass transportation.

HOW FAR CAN PUBLIC INTEREST IN STREET RAILWAYS GO?

Monopoly is a matter of degree. It would be hard to find a complete monopoly in service or commodities that are absolutely essential to human life. In almost every case, some other commodity or service can be substituted at greater or less inconvenience and with greater or less actual loss. But in the field of urban transportation, motor bus service is so eligible an alternative to street car service for such a vast multitude of individual riders, that the elements of monopoly, usually conceived as offering the basis for public regulation of rates and service, are well-nigh destroyed, so far as the street railway is concerned.

What is to be done? Shall the public withdraw from the street railways the heavy hand of regulation, and release them from their responsibilities as a

public utility, leaving them free to render service where it is profitable and to compete on their own terms with other means of transportation? Is it conceivable that these instrumentalities of public service, operating under public franchises and using the public streets as rights of way for fixed and permanent tracks and overhead construction, should now be relegated to the status of a private business and be let to go their own sweet way? The answer to this question depends upon what we conceive to be the nature of the street railway in relation to community needs. If we regard it as an essential instrumentality of public service, it must be protected as well as controlled. On the other hand, if it is a mere obsolescent private enterprise, in whose stability and continued expansion the public has no vital interest, then gradually its privileges may be withdrawn, its obligations lightened, and its ultimate fate be left to the verdict of time and the arts.

The public is not interested in the protection of the street railway merely as a private financial enterprise. Its interest, if it has an interest, is in the protection of the street railway as a tool or instrumentality of public service, something which belongs to the public and cannot be taken away or injured without injury to the public. Obviously, the public under our form of government cannot well undertake to prohibit the use of private vehicles or to arrest people for walking and bundle them into the street cars to pay fares for the support of the street railway as a private business.

But if the continuance of the street railway is a public necessity, the public can levy taxes to support it and can limit or prohibit the direct competition of other public vehicles. Even if the public asserts its interest in the main-

tenance of street railway service to the extent of public ownership and operation, as it has already done in a number of American cities, still, practical considerations make it necessary that the street railway service rendered under public auspices shall be self-sustaining or as nearly so as possible under the circumstances in each particular case. Special burdens may be withdrawn, service may be reduced in certain instances, fares may be increased within certain limits, operating economies may be effected, even special taxes may be levied to cover the cost of stand-by service which benefits the community as a whole, but in the main the public is not interested in empty cars but in full ones; it must figure on keeping the street railway in condition to render a maximum amount of public service and to offer this service under conditions that will attract those who can make use of it.

Without doubt, the movement toward public ownership, from the point of view of public policy, is being slowed down by the doubt in the public mind as to the future of the street railway, and even by the conviction on the part of many people that the street railway is obsolete or obsolescent and has no future, unless it be as a business artificially bolstered up and kept going beyond its time. Notwithstanding the superficially confused outlook, the evidence is overwhelming that the street railway as a public utility is neither dead nor moribund, but that its financial difficulties are such as to make public co-operation and support necessary. This naturally points toward public ownership and operation, but in any event complete municipalization will take a long time, and either under public ownership or under continued private ownership, the problem of the control of competition remains.

REGULATING MOTOR BUS TRANSPORTATION

The motor bus as a public carrier, whether operated singly or as part of an organized system of transportation, naturally falls within that class of enterprises in which the public has a special interest and over which it is bound to exercise special control. In other words, the motor bus is a public utility, and is due in its own right for regulation. The status of the street railway in relation to actual or potential motor bus competition merely complicates the problem; so that we have two questions to answer instead of one:

First, what regulations should be imposed on motor bus transportation for the protection of those who ride in the buses or who meet them on the road, and for the protection of the taxpayers who furnish the road?

Second, what further or different regulations should be imposed on the motor buses for the protection of those who use the street cars and for the protection of the public's interest in the street car as an essential utility?

The regulation that motor bus transportation, in and of itself, requires at the present time is comparatively simple. The motor bus does not fasten itself to public property and claim to use public streets as a private right of way. It can move from one route to another or even transfer its operations to another town, or cease operation altogether, without the destruction of a vast amount of fixed property devoted to public use but vested in private ownership. Public regulation is comparatively unimportant so far as the protection of the investment is concerned, and not yet of very vital importance as a curb on privileged monopoly. In those localities where the motor bus does enjoy a monopoly

of public transportation, it should as a matter of course be required to render adequate service and to charge only reasonable rates, but in most cases both these objects are still regulated by direct or indirect, potential or actual, competition.

In New York the Fifth Avenue Coach Company has operated for many years under a ten-cent fare franchise, chiefly on Fifth Avenue and Riverside Drive, where street cars have always been taboo. The traffic is largely a sight-seeing traffic which does not mind the ten-cent fare, or a Fifth Avenue shopping traffic that chooses this route in order to get to high-priced stores. The Fifth Avenue Coach Company competes successfully with surface, subway and elevated lines parallel to its route and only one or two blocks away. That it has been successful as a financial enterprise is shown by its balance sheet for December 31, 1923, as published by the Transit Commission. The item of "fixed capital" or "gross investment" appears at \$3,983,391.14, with accrued amortization of \$1,801,018.50, leaving the "net investment" in utility property at \$2,682,372.64. Its "other investments," "current assets," "material and supplies," etc., bring its total assets up to \$6,905,485.74. On the liabilities side it has no bonds and only \$50,000 of capital stock, but a corporate surplus of \$6,062,960.93. It carries about 55,000,000 revenue passengers per annum, which is within 10 per cent of the total street railway traffic in Denver, where there are no local buses.

In Detroit and Chicago, the motor bus companies are carrying a vast amount of traffic at the ten-cent fare, for the most part being routed on streets where there are no street car tracks, and rendering a special service for which, apparently, their clientele

are quite willing to pay ten cents, as contrasted with the general six-cent street car fare in Detroit and the seven-cent fare in Chicago.

In Minneapolis and St. Paul there are no strictly local buses, but intercity bus lines have sprung up in recent years, substantially paralleling on the same streets three of the through-service street car lines. The street cars charge two fares, twelve cents in all, for the intercity ride. The buses charge twenty-five cents, whether the passengers take a through ride or go only a few blocks. Yet the buses thrive, and during the summer of 1924 the Twin City Rapid Transit Company acquired the principal one of these bus lines at the announced price of \$500,000. The buses are now being operated through a subsidiary company, and thus far (September 29) they continue to charge the same rates as formerly, with no noticeable change in either street railway or bus service.

On the other hand, the development of competitive, low-priced jitney bus service in Newark and the other principal cities of New Jersey during the past eight years has been so remarkable that the Public Service Railway has been forced to adopt a five-cent zone fare on its street car lines, and is now getting possession of the jitney lines and operating its own fleets of buses at the old jitney rates. In New Jersey, the development of the jitneys was in part due to the inability of the Public Service Railway to render adequate service with its present track layout, particularly in connection with the Newark terminal of the Hudson and Manhattan Railroad, where an immense traffic demands convenient accommodation; but in the main the jitney service has been competing more or less directly with the street car service.

From a consideration of facts such

as have been cited, it seems obvious that the regulation of buses, where they do not compete with the street railways, should cover such matters as routing, schedules, speed, responsibility for accidents, type of vehicle, noise, ventilation, lighting and other similar matters which are essential elements of public transportation service. Also, in order to protect the tax-paying public from too heavy burdens, it may be necessary to levy upon the buses license, gross earnings or other taxes sufficient to constitute their fair proportion of the cost of the roads which they use and the police service which high speed vehicles and congested traffic make necessary.

EXTENT OF MOTOR BUS REGULATION

When it comes to the other question, namely, the extent to which motor transportation should be limited and regulated for the protection of the street railway as an essential instrument of public service, there are more difficulties. It all depends on whether or not the street railway broncho has in fact been subdued to domesticity and the patient drudgery of obedience. The American people cannot afford to check competitive enterprise in transportation save for *public* benefit, and protecting and preserving the street railway by restrictive measures are quite unwarranted, unless the street railway is in fact, as well as in name, a public service agency. It cannot well have its monopoly bolstered up by public regulation, until it has cast out the evil spirit of exploitation, purged itself of all extravagances and settled down to an honest, quiet and responsive career of service. To put it in another way, the public does not owe the street railways protection so long as they persist in trying to bolster up unsound and speculative financial structures, with the vagaries of repro-

duction cost and other vain imaginings of the subsidized expert mind. With the street railway eschewing speculation and basing their claims to public favor upon the solid rock of honest and prudent investment in public service, they will be entitled to protection from unfair competition. In many instances, however, the street railways put forward valuation and rate-of-return claims which, if admitted, would put street car fares and service clearly beyond the pale of public regulation; for the companies could not give bad enough service or collect high enough fares to yield anything like the cost of capital which they claim as their due.

In general, upon the assumption of actual public control, either through public ownership or through effective public regulation, if that is possible, the main agencies of local passenger transportation should be closely co-ordinated and made to co-operate in rendering comprehensive, convenient and economical public service, with only a little competition left on the fringes of the transportation area for pioneering purposes.

The kind of bus regulation required to protect the street railway obviously includes:

1. Control of bus routes, so as to **make** bus service supplementary rather than directly competitive.
2. Adequate taxation to put buses on a par with street cars.
3. Heavy bonding or other measures to enforce liability for injuries and damages inflicted as an incident of bus operation.
4. Regularity of schedules and adequacy of service.

Obviously, also, it is unnecessary,

from the street railway point of view, for the public authorities to insist upon the buses reducing their rates to a parity with street car fares, where the buses attract traffic at the higher rates, and, on the other hand, the public authorities can hardly be expected to insist on the buses *raising* their rates to the level of the street car fares, where the latter are higher, if the buses are in fact able to render service at the lower rates after bearing their share of the public burdens. Indeed, the extent of bus regulation necessary to protect the street railways will depend largely upon its form. If the street railways are effectively protected from bus competition for traffic tributary to the car lines, they have no further legitimate interest in bus regulation, except as they share in the general interest of the community. On the other hand, if it is impracticable, as it is likely to be in most cases, to shut off bus competition entirely, then the street railways are interested in a type of public regulation that will not leave the buses with unfair advantages in the laxity of service requirements or in the lightness of the public burdens imposed upon them.

Under private ownership and operation, the competition of bus transportation should be controlled and kept within reasonable bounds, but not stifled.

Under public ownership and operation, buses should be utilized for supplementary service, with opportunity for free experimentation and the partial or complete substitution of bus transportation for the street cars if, where, and when this substitution can be effected with advantage to the public, due consideration being given to the capital losses involved in the change.

The Highway Business

What Pennsylvania is Doing

By WILLIAM H. CONNELL

Engineering Executive and Deputy Secretary of Highways, Commonwealth of Pennsylvania

IN the United States there are about seven hundred fifty thousand (750,000) people engaged in highway work, the expenditures for which amount to about one billion five hundred million dollars (\$1,500,000,000) a year.

The highway business is one of the largest—if not the largest—business industries in this country today. The reason, of course, is that it supplies a need that is an important factor in the life of every individual in the country. Highway transportation is a necessity from an educational, religious, economic and social standpoint in the farming districts, on the plains, in the mountainous districts, as well as in the large centers of population. The advent of motor transportation with its far-reaching possibilities for the individual, both from a business and social standpoint, has created a demand for improved highways in every section of the country.

In the days of horse-drawn traffic paved highways were, as a rule, to be found only in centers of population and suburban sections. The economic limits of horse-drawn transportation were confined to a very small area and, therefore, it was not necessary to construct high class pavements for any great distance from the large centers of population. The advent of motor transportation has increased the radius of highway transportation so that it has become necessary, in order to meet the traffic needs, to construct modern highway type pavements throughout every section of the United States.

This complete change in traffic conditions within the last twelve years is responsible for the growth of the highway industry. The highway business like the steam railroad business, the steel business, the newspaper business, the manufacturing business, or the street railway business, is a business that can only be successfully conducted by applying everyday, common-sense, business principles to its operation.

Trained Engineers to Solve the Problem

The problem, so far as state highways are concerned, is comparatively new, as it was of little consequence before the advent of the automobile. This new means of transportation played havoc with the old waterbound macadam pavement and made it necessary to make changes in the wearing surface of this pavement and to provide more substantial construction for country roads. The solution of this problem was worked out like the solution of every problem is worked out, but in this instance under great difficulties. The proper procedure, when confronted with a problem, is to make a general study of the conditions and determine upon the best means of ascertaining the necessary facts to solve the problem.

If an individual is in poor health and does not know what the trouble is, a doctor is called in because he is trained and equipped to solve the health problem. If the difficulties are of a legal nature the lawyer is called in to solve the problem. If there are difficulties encountered in railroad business the

solution of the problem is to get the advice of railroad men. In the newspaper business newspaper men are called upon, in the manufacturing, business men who understand that business, and likewise in the highway business, men who understand the highway business, or highway engineers, are the ones to solve the problem.

Unfortunately, a number of years ago, due to the work being largely public work, everybody thought he knew as much about it as the men who were trained in the business and everybody "butted in." The butcher, the baker, and the candlestick maker and well-meaning citizens of all classes conducted highway work and wasted untold millions of dollars in attempting to solve a problem that they were not trained to solve and knew nothing about. If this work were entirely controlled by business interests, it would have been solved in the usual way: by employing those best fitted to work out the solution. This condition, which retarded highway improvement for a number of years, is gradually giving way to a realization by the public of the necessity of entrusting the highway engineering business with trained highway engineers, as they appreciate that in the last analysis it is the only solution and the success of any business is dependent upon its being conducted by a force trained and schooled in the business they are conducting.

Placing Work on Engineering Business Basis

Great strides have been made in the last fifteen years in placing highway work on a highway engineering business basis and the Pennsylvania Department of Highways is an outstanding example. The solution of any problem is comparatively easy when there is a thorough understanding of the

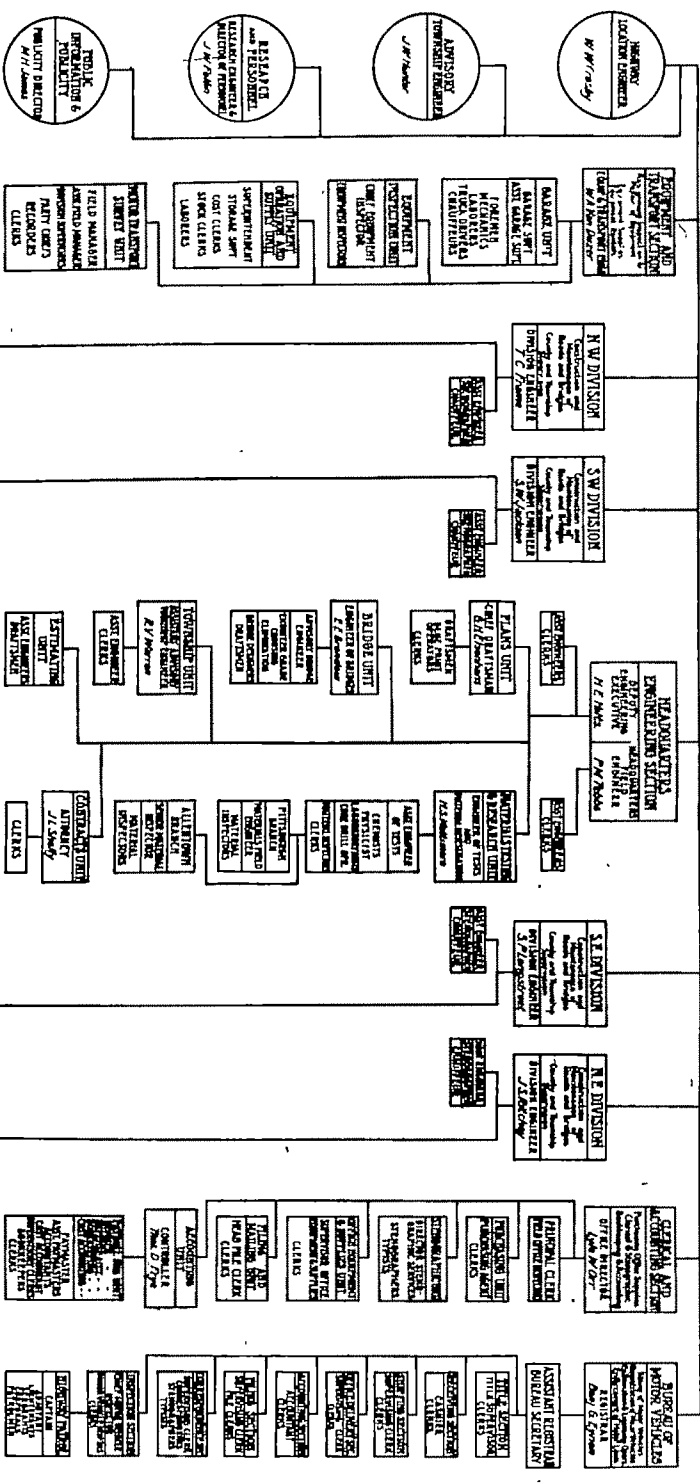
problem by all interests concerned. To bring about a thorough understanding there is nothing like getting all the facts and putting the cards on the table. The highway business has been mismanaged, misunderstood and confused in many instances in the past, due to a lack of understanding. The American public would not deliberately throw untold millions into the gutter, as they have done in highway expenditures in the past, and as they are doing in many instances today, if there were a better understanding of the facts. The only way to get highway facts is through trained highway engineers.

This is the situation which the Pennsylvania Department of Highways is bringing about. The state has organized a department of trained highway engineers whose services are not only confined to the conduct of the work of the state highway system, but the state is offering the services of this technically trained, highway organization to all the counties and townships. The legislature has enacted laws that enable the counties and townships to avail themselves of the services of this organization so they can be properly guided in their highway expenditures and the counties and townships have been quick to take advantage of this opportunity and are co-operating with the Department in a manner that is most gratifying.

Politics and Material Interests Propaganda

In the old days everybody used to tell the engineers how to build highways and where to build them. Now, in most instances, in Pennsylvania they are asking for advice. This condition is gradually being brought about throughout the whole United States. The approach to the solution of the highway problem has always been very

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simple but it has taken years to focus it, as the issue was deliberately beclouded by contractors, selfish, material interests and politicians. In the old days many contractors did not want highway engineers inspecting their work. The material interests were conducting misleading propaganda to push their own materials. Politicians were throwing a smoke screen around the issue; in the nature of propaganda, to the effect that technical men were not practical enough and, strange to say, it has taken the public a long time to realize that in order to handle this problem from a practical standpoint it is necessary to employ someone who thoroughly understands the problem and, of course, in the highway business it is the highway engineer. One of the leading politicians in one of the largest cities in the United States only a few years ago said, in all seriousness, that he believed the inspectors who were at that time in the highway department referred to were good inspectors because they were practical fellows and knew the streets well because they used to be truck drivers. To inspect, one must be trained in the business. The inspector is a most important cog in the wheel. He is the chief's 'eyes' on the job.

These days are giving way to a better understanding between the public and the engineers, brought about by the highway users and the engineers. If propaganda had been directed years ago to install a trained organization to handle highway work with as much force and persistence as the propaganda that was directed by the politicians, contractors, and selfish, material interests, there would be a great many more miles of hard surfaced roads available at this time.

There is only one answer to the highway problem: install a trained organi-

zation. Through their knowledge of the subject, which will be reflected in their work, they will soon get the confidence of the public. With the confidence of the public, the money will be supplied in bond issue and motor license revenues. Everyone is directly or indirectly a highway user and is glad to pay his share provided he sees he is getting a dollar's worth of value for every dollar expended.

Highway Expenditures

The proper administration of the expenditures of one billion five hundred million dollars (\$1,500,000,000) a year is of paramount importance. Waste and extravagance in the administration of these expenditures could very easily bankrupt states, counties, cities, boroughs and townships.

Of the total expenditures, about 75 per cent is for rural highway work, 25 per cent for the streets and roads of urban communities having a population of 2,500 or more. The state highway departments are the largest units administering highway work and the Pennsylvania Highway Department is the largest state highway organization.

Pennsylvania Highway System and Administration

Pennsylvania has an area of about 45,000 square miles. The state area is divided into cities, counties, boroughs and townships. The Department of Highways exercises a general control over all the highway work outside of the cities and boroughs. In this area there are about 100,000 miles of road. Of this amount 10,307 miles constitute what is known as the state highway system. Those roads are entirely under the jurisdiction of the Department of Highways. Approximately 5,780 miles are improved with a hard surface in some form or other. That means

either stone or durable types of pavements. The remaining 4,527 miles are unimproved dirt roads that are to be paved by the Department of Highways. The system is divided into a primary and secondary system. The primary system comprises about 3,970 miles and these roads constitute the main trunk line highways. They connect county seats and large centers of population and the adjoining state highway routes.

Expenditures

From 1911 to 1923 \$180,000,000 was spent on the state highway system, of which \$112,000,000 was spent on construction, \$50,000,000 on maintenance, and \$18,000,000 on miscellaneous work, overhead and various other items.

The great stride in highway work in Pennsylvania was made between 1919 and 1923, or after the war. During that period \$135,000,000 out of a total of \$180,000,000 was spent on the system. Prior to 1919 there was not much progress.

The estimated expenditures from January 1, 1923, to January 1, 1927, directly under the jurisdiction of the Department of Highways will be about \$220,000,000. Twenty million dollars of this is one hundred per cent county work—work for which all the cost is contributed by the county and the engineering and inspection is done by the State Department.

The township work is also a very big factor as will be appreciated from the great mileage of roads. It is estimated that in four years there will be \$85,000,000 spent on the township roads. This work is under the general supervision of the Department of Highways but is not as closely controlled as the one hundred per cent county road work. Adding this expenditure to the \$220,-

000,000, it shows a total expenditure of \$305,000,000 which will be under the general supervision of the Department of Highways during the first five years of this administration. This is a greater sum than has been expended on any engineering project of the Panama Canal or the Panama Water Works, in the same time.

This emphasizes the magnitude of the highway work throughout the country. It is the biggest thing in engineering today and it will continue to be for a great many years to come, probably for all time, or until there is an entirely different system of transportation. As long as the problem remains on the ground the problem will be increasing every year. The upkeep is the most important and the more roads that are built the greater will become the ultimate problem.

Organization

In carrying on work of this magnitude, organization is a very important factor and the greater the scope of the work, the more necessary it is to have a good, sound organization. If the problem consists of carrying out the work in a small area, it is a matter of detail, but the control of the work in a large area, where the work is so widely separated, becomes a matter of organization.

The general engineering supervision of the Pennsylvania Department of Highways, including the stenographic, etc., consists of about a thousand seven hundred permanent maintenance field organizing foremen, laborers, etc., and during the working season comprises approximately 12,000 men. In addition to this the contractors employ about 12,000 men on state highway

tion and, of course, this work is under the supervision of the department. So there are about 25,700 people engaged in highway work under the supervision of the Pennsylvania Department of Highways from April until December and there is, of course, a very considerable force engaged on maintenance work all through the winter.

In the present organization of the Department of Highways the secretary of highways is the head of the department. The engineering executive and deputy secretary is next in authority and has been delegated all the powers of the secretary of highways. Reporting to the engineering executive is a deputy engineering executive who is primarily in charge of the office engineering routine. There is also a headquarters field engineer, equipment transport engineer, location engineer, research engineer, supervisory township engineer, office director, director of the bureau of registration of motor vehicles, and director of publicity, reporting direct to the engineering executive. There are also four division engineers whose offices are located at different points throughout the state who report to the engineering executive. There are fifteen district engineers with offices located throughout the state. These men report to the respective division engineers in charge of the territory in which they are located. There are fifty-two superintendents of maintenance reporting to the respective district engineer in charge of the territory in which they are located. The district engineer is king in his territory. His word is law. He makes the surveys and plans which are sent to the main office where they are given further study, after which the type of pavement is selected and the work advertised from the main office. The inspectors and the survey corps, as well

as the maintenance superintendents, report directly to the district engineer. The idea is to keep the division engineers free from detail so they can spend all their time going around the state advising with the district engineers in connection with the construction and maintenance work. All routine correspondence comes direct from the district to the main office and copies are sent to the division engineers.

Motor Vehicle Registration

The registration of motor vehicles and the collection of license fees is under the direction of the Motor Vehicle Registration Bureau of the Department of Highways.

Comparative Unit Costs

As a means of developing the maintenance work and placing it on a higher standard, it is being placed on a comparative unit cost basis. The first thing to know is the comparative unit costs of work under the jurisdiction of the division engineers. The division engineers then in turn hold the district engineers responsible so that the cost of the work under the jurisdiction of the district engineers is compared. The district engineers in turn hold their superintendents responsible so that it is necessary to have comparative costs of the work under the jurisdiction of the superintendents. The superintendents hold their foremen and caretakers responsible, which makes it necessary to have comparative costs of the work under the jurisdiction of the respective foremen.

This system invariably increases production at a decreased cost. It arouses the interest of the men in their work and raises the standard of morale of the organization. When the men feel that there is a definite basis for comparing the quantity and cost of

their work work in other localities, they naturally become more interested as the competition brings about a spirit of friendly rivalry. It results in developing a better and more effective organization as it gives the men something more to think about than the mere performance of the physical work. It translates the work into dollars and that naturally gives them an added interest. It tends to encourage them to think about their work from the dollar and cents standpoint as well as from a quality and quantity standpoint and, of course, the main thing in a large organization, in order to get the best results, is to develop ways and means of interesting the men in their work.

The two outstanding phases of the highway business are upkeep and construction. Upkeep is of the most importance because poor upkeep necessitates premature new construction. The application of the theory, "A stitch in time saves nine," to the upkeep of the highway system saves untold millions in new construction. The upkeep is the operating side of the business and any experienced business man knows that it is poor economy to neglect the upkeep of the buildings, machinery, etc. He also knows that when the annual expenditures for upkeep exceed the interest, sinking fund and upkeep charges of the replacement, that the economic limit has been reached and replacement is justified. This is the theory that the Pennsylvania Department of Highways is applying. The department is guided in its maintenance and building of new roads by plain, ordinary, everyday economics.

Location of Highways

While the economics of the road surfacing is a very important factor, the economics of the highway location is

also of very considerable importance. The highways, like the railroads, lead from one center of population to another. The through routes in particular should be located with a view to carrying the traffic to and from the different centers of population by the shortest route and over roads with reasonable grades and curvature for motor transportation. Most of the roads were laid out for local horse-drawn traffic without much consideration being given to selecting the shortest route between distant points. The old highways, therefore, are not as a rule on the economic location.

In general in Pennsylvania the location of the state highways is fixed by legislative enactments which enumerate the principal points connected by the routes. Between these points the department has wide powers of relocation and uses these to establish locations which will best serve the greatest number, the general principle being kept in mind that the state highway routes are essentially through routes.

It is not necessary to continue to adhere to a location of a route through a point fixed by legislature if it is not the logical location for a through route, provided a spur is built by the state from the route to the point fixed by legislature. It will be readily observed that this enables the department to locate the through routes to the best advantage to the state as a whole by eliminating minor centers of population in instances where it would increase the distance considerably to pass through these communities. The policy of relocating through-route highways with a view to providing the logical shortest route sometimes leads to a sacrifice of local interests for the general good.

The average motor transportation cost to the highway users for each

thousand feet over a hard surfaced road is approximately \$.023 for each vehicle. The cost, therefore, of one thousand vehicles a day would be \$23.00, or \$8,395.00 per year, or approximately \$167,900 over a period of twenty years. This clearly indicates the necessity of shortening the distance, where practical, on a through-route highway. Many relocations are made that result in shortening the distance over a mile. Based on the figures stated, the saving to the users in transportation costs for each mile would be approximately \$44,300 per year, or \$886,000 over a period of twenty years. These figures are based on 90 per cent passenger traffic and 10 per cent truck traffic.

On the Pennsylvania state highway system the relocations thus far have resulted in a saving of approximately 100 miles. With an average traffic of 1000 vehicles per day the saving in operating costs is approximately \$4,430,000 per year. To this should be added \$480,000 which is the average annual costs of 100 miles of pavement and is made up of the interest on the investment, sinking fund requirements for bond issue, and the maintenance costs, making a total annual saving, due to reducing the distance by 100 miles on the Pennsylvania highway system, of \$4,910,000 per year. In other words, if this distance were not saved by constructing the highways on the economic location, the waste or loss to the public would be \$4,910,000 per year.

It is difficult for local communities to reconcile themselves to the highway being routed around their community instead of through the main street, but when they are built for through traffic, the only sound policy is to build them in the most economic location for all the users.

Ultimate Width of Right of Way

The maximum traffic on the hard surfaced roads on the Pennsylvania highway system is as high as 15,000 vehicles a day on roads close to the city of Philadelphia, while the maximum traffic on some of the out-lying, hard-surfaced roads is less than 100 vehicles a day, and of course it is considerably less than this on unimproved roads. It will be readily observed, therefore, that there is quite a diversity in traffic conditions in the different sections of the state.

Pennsylvania has a number of large centers of population, notably Philadelphia, Pittsburgh, Wilkes-Barre, Scranton, Erie, etc., and also a very extended area in which the population averages only about 50 per square mile. Of course, there is a very considerable area where it does not average one per square mile. The highway system traverses a territory embracing virtually all kinds of traffic conditions. A very considerable mileage of the roads on the system are mountain roads, where the problem is to provide safe roads with relation to grades and curves without detracting too much from the natural scenic advantages.

The state highways, like the city streets, due to the variation in their importance from a traffic standpoint, should be constructed of varying widths, and provision should be made for the future traffic requirements by fixing the ultimate width of right-of-way. During the present administration the Pennsylvania Department of Highways made it a policy to fix the ultimate width of right-of-way for the highways on the state system. The law gives the department the authority, with the approval of the governor, to fix the width of the ultimate right-of-way up to 120 feet. By recording such

action with the proper county court the width adopted becomes the legal right-of-way. This will save the public millions of dollars in damages when the highways are widened, as once the width is established and recorded, damages cannot be collected for improvements constructed within the established right-of-way. The law provides that the cost of damages for the abutting property for additional right-of-way is to be borne by the counties.

At the present time surveys are being made with a view toward fixing the ultimate future width and right-of-way for all the highways on the highway system. The widths that will be established are 50, 60, 80, 100 and 120 feet. This includes the sidewalk area. The determination of the width of the highways in each instance is based upon the probable future traffic needs. In open country, where there is no curb and no occasion for parking on the pavement and where there is sufficient traffic to warrant it, provision should be made for future pavement widths that would provide for a slow and a fast moving traffic lane going in either direction. This would necessitate a paved width of roadway of forty feet, leaving ten feet for sidewalk space for pedestrians. On highways carrying very heavy traffic the width is based upon three ten-foot traffic lanes in either direction, making six in all. The traffic lane nearest the curb is for parking, the lane next to that for slow moving vehicles, motor busses, trucks, etc., and the other lane for fast moving vehicles and for passing.

This work will result in fixing the state plan. This is similar to what has been done by cities in the past and it has been considered of such importance in large cities that city planning engineers are engaged exclusively on this work. It is equally important, if not

more so, in state highway systems. A location engineer has recently been added to the staff of the Pennsylvania Department of Highways to take charge of this most important function. Several plans have already been filed and a number of surveys are under way. This is the kind of work the engineers will not receive much credit for during their lifetime, as the need for the additional widths of right-of-way that are being established at this time will not materialize for a number of years. It is for future generations, but now is the time to do it. Highway departments, like railroads, public service corporations, and industries, must have sufficient vision to provide for the future needs, otherwise the work of today will not fit in with the requirements of tomorrow.

Economics of Selection of Type of Construction

The type of construction is determined upon after reviewing all the facts relative to the probable future traffic needs of each individual section of highway as it comes up for consideration. It would be absurd to construct a pavement with a light traffic surfacing on a heavy traffic highway, and likewise it would be absurd to construct a pavement with a heavy traffic surfacing on a highway where the facts indicate that the future traffic will be very light.

There is no such thing as one design of surfacing to suit all conditions. This would be false from a business engineering economic standpoint. In each instance the facts relative to the probable future traffic needs of the highway should be used as a guide in the selection of the type. It would be false economy to construct a type of surfacing that is suited only for light traffic on all of the roads. It would likewise be false economy to construct

a type of surfacing that is suited for heavy traffic on all of the roads.

The economic road surfacing may consist of any type of surfacing from a dirt road to a high-priced, smooth, dressed, granite block pavement on a concrete foundation. The economic surfacing is the surfacing that adequately provides for the traffic in each individual instance at the least annual cost. The items that enter into the costs include interest on the investment and, if constructed from bond issue, the sinking fund charges for the retirement of the bond issue, the annual cost for the upkeep of the road, transportation costs, or the difference in the cost of operating motor vehicles on different types of road surface.

The transportation costs vary depending upon the character of road surfacing. For example, it is generally accepted from tests that have been made throughout the country, notably those by Professor Agg of the Iowa State College, that it costs about 40 per cent more for the fuel to operate a motor vehicle on dirt roads than on smooth, hard-surfaced roads. The items of motor vehicle transportation costs which are affected by the character of the road surfaces include depreciation, repairs, tires, oil and gasoline. It is estimated that the total additional transportation costs for motor vehicles operated on dirt roads as compared with hard surfaced roads is 25 per cent. From this it can be readily seen that, where there is any appreciable amount of traffic using a dirt road, the saving in the operating costs for these vehicles on hard-surfaced roads as compared with dirt roads would justify the construction of a hard-surfaced road. For example, assuming that the average operating cost per mile of passenger cars on hard-surfaced roads is ten cents, and the average operating

costs of trucks on hard-surfaced roads is thirty-six cents, assuming traffic of 300 vehicles a day, 90 per cent passenger cars and 10 per cent trucks, and operating costs on dirt roads 25 per cent more than on hard-surfaced roads, the annual saving in operating costs per mile per year would be \$2,835 per mile, using 300 traffic days per year, or more than enough to pay for the annual interest, sinking fund and maintenance costs for the construction of a hard-surfaced pavement suitable for the traffic.

For a traffic of 600 vehicles per day divided in the same proportions, the operating savings per mile would be approximately \$5,670 annually and for a traffic of 1,000 vehicles per day the savings would be \$9,450 annually by changing from a dirt to hard-surfaced pavement.

A dirt road is not an adequate road surfacing for any appreciable amount of traffic and under such circumstances it cannot be satisfactorily maintained at any cost. On the other hand, there are many instances where there is not sufficient traffic to warrant the construction of a pavement. The economic road surfacing in some instances, therefore, is the dirt road, in other instances a gravel road, in others a bituminous, surface-treated macadam road, a bituminous, penetration macadam road, a bituminous concrete road on a stone base, a bituminous concrete or asphalt pavement on a concrete base, a concrete pavement, a granite block pavement on a concrete base, etc. In each instance the determining factor should be the facts relative to the estimated probable future traffic the road will be required to care for. These facts govern the selection of the type of pavement and the width of the roadway. We can closely estimate from experience the annual mainte-

nance costs on a vehicle ton mile basis for the different types of pavements. From this it will be readily seen that it is not a difficult matter to determine the economic pavement or the pavement that will be adequate for the traffic needs in each individual instance.

Traffic Studies

The primary consideration must always be the probable future traffic and the character of this traffic. Present traffic information is helpful but often misleading. For example, a road that is not substantially paved may carry a considerable amount of passenger traffic, whereas if it were paved with a so-called durable type of construction, it would probably invite a very considerable amount of heavy truck traffic. It is for this reason and due to many other considerations entering into the problem, upon which the conclusions are based with respect to the estimated future traffic and character of the traffic, that it is necessary for all highway departments to make studies, with a view to forecasting the probable future traffic needs, such as are being made by the Pennsylvania State Department of Highways today, in co-operation with the United States Bureau of Public Roads. The studies being made will take into account whether the probable future development of the territory tributary to the respective highways will be agricultural, mining, industrial, resort, etc.

Construction based on estimated future traffic information, such as is being developed from studies being made in this state, is far better than selections which are based on a construction of uniform strength for all traffic conditions throughout the state. It is perfectly obvious that this method of determining the suitability of construction will result in having a great

percentage of construction entirely too light for the probable future heavy traffic roads and pavements unnecessarily costly for the probable future light traffic roads.

The traffic studies being made by the Pennsylvania Department of Highways and the United States Bureau of Public Roads are very extensive and far reaching and will supply the facts upon which to determine the ultimate widths of right-of-way of the roads on the highway system as well as the character and widths of pavements. The government regards this survey of sufficient importance to pay one-half the cost in order to obtain the necessary information for future highway planning. The survey was started last October and will be completed this October. The force consists of about one hundred men located at different points throughout the state making traffic counts, weighing trucks, getting information concerning the kind of goods transported, origin and destination of trucks and passenger cars, and all necessary data relative to the subject, all with a view to estimating the amount and character of the probable future traffic use of the highways. This in itself is a very big subject and would require a great deal of space to discuss it in all of its aspects. It will be sufficient for the purpose of this discussion to state that the studies being made are similar to those made by railroads, street railways, telephone, and other public service corporations and industries in general in order to estimate their future business so they can make their plans accordingly. The highway business is highway transportation and it is essential to obtain all the necessary information to plan to the best advantage to take care of the future transportation needs.

After the highways are constructed

the biggest problem presents itself which is the problem of the operation of the highway system. This involves the upkeep and control of the use of the highways.

Upkeep

The 13,700 men on the payroll of the department, of whom about 12,000 are engaged exclusively in the upkeep of the highways, are all imbued with the spirit of service. The employes of the department are impressed with the fact that they are part of a service organization whose function is to make it possible for the traffic throughout the whole state to travel over the highways with the greatest possible comfort and safety and the least inconvenience.

The highway and railroad problems are alike. The railroad roadbed and rails must be kept in a proper condition for the comfort and safety of the transportation needs of the public. Likewise the highways must be kept in a proper condition for the comfort and safety of the motor transportation needs of the public.

The highways are constantly maintained through a combination of the patrol and gang system. This consists of assigning a man to take care of the small patchwork for a definite length of highway. This work is supplemented by gangs assigned to specific territories to take care of the larger maintenance work until such time as the pavement requires a resurfacing or replacement.

Bituminous Surface Treatments

Bituminous surface treatments and oiling on the highways is done in half width sections. The bituminous material is not put on the second section until the first section is thoroughly dry. This work is scheduled for completion for the whole state by June 15 so that the

summer travel will not be subjected to the discomfort and inconvenience of fresh oil on the road.

Detours

During the construction of highways great care is exercised to not only direct the traffic by properly located detour signs, but the department spends considerable money in placing in good travelable condition the roads used for detours, on the principle that it is our function to provide the best possible traveling surface under all conditions.

Snow Removal

The main highways are kept open to traffic all year round. The department erects snow fences at locations where experience has proved that there is likely to be considerable drifting in heavy snow storms. As soon as the snow begins to fall, the superintendents are notified and when there is a depth of two inches of snow on the ground the equipment is ordered out and the plows and men work day and night until the storm is over. The policy is to fight the storm rather than wait until the snow has ceased to fall and then endeavor to clear the roads which often results in a tie-up for a considerable length of time.

Control of the Use of the Highway

The Pennsylvania Department of Highways has a uniformed highway patrol to enforce the traffic rules and regulations.

At present there are 1,000,000 motor cars registered in the state and it is estimated that this number will double during the next several years. This will greatly increase the traffic and emphasizes the need for well-organized control of the use of the highways. The state traffic problem of the future will not be unlike that of large cities.

All of the states will eventually have traffic police patrolling the roads and stationed at important intersections to control the traffic.

Traffic Lines

Last year the department adopted the policy of painting white traffic lines in the center of the highways on all horizontal curves and for a distance of 150 feet on either side of the curve, and on all vertical curves for a distance of 250 feet on either side where there is not sufficient sight distance to see vehicles coming from the opposite direction. Also on long tangents lines are painted at intervals as a reminder to the traffic to keep on its own side of the road. Nothing the department has done has received more commendation than the extensive painting of traffic lines. The traveling public showed its appreciation of the importance of controlling the traffic in this way by adopting the principle of traveling on the right side of the road in the direction in which they are going, while formerly the custom was to drive in the middle of the road and to turn out for traffic passing in the other direction. There is nothing that will result in minimizing the accidents more than traffic lines.

Guard Rails, etc.

Guard rails consisting of seven-foot locust or chestnut posts, set three and one-half feet above the ground, through which two wire cables are strung are erected on all embankments on state highway routes. There have been many instances where trucks and passenger cars have been prevented by these guard rails from falling a considerable distance over embankments, thus avoiding very serious accidents.

Whitewashing Poles

Telephone poles on the highway routes are whitewashed for a height of

six feet from the ground, to serve as a traffic guide and are very effective, particularly at night.

Grade Crossings

The department has engaged in a very extensive program of elimination of grade crossings and pending their elimination an effort is being made to minimize accidents by placing flashing signals, and by painting checkerboards on the pavement, etc., as a warning to the traffic that a grade crossing is being approached.

Signs and Traffic Signals

Signs are placed three hundred feet on either side of all bridges wide enough for only one way traffic. The signs read, "Narrow Bridge. Width for One Car Only." Signs are also provided at the approach to dangerous hills. The signs read, "Dangerous Hill. Go Into Second Gear." Warning signs are erected approaching all curves, danger signs approaching grade crossings and cross roads, and distance signs at all intersections. About 30,000 distance, direction, danger signs, etc., are erected on the Pennsylvania state highway system.

Arrangements are also being made to place red reflector signals or flashing signals at all danger locations and yellow reflector signals at all warning locations. These reflector signals will be desirable as a traffic guide at night, as signs are of very little use after dark.

Safe Sight

To provide a free and unobstructed view across land located at or near the intersection of any two highways or a highway and railroad or at any curve in the highway, the department is permitted to acquire these lands by purchase or eminent domain, and to prevent the use of them for any purpose

which would interfere with or obstruct the vision of users of the highway. It is not essential that the Department of Highways actually acquire the title to the land. It may by condemnation of view prevent the owner from making any use of it which will interfere with a free and unobstructed view.

Naming and Numbering of Highway Routes

The Department of Highways is now carrying out a program of naming and numbering the highway routes. The plan is to give each through route a name and route number for its entire length throughout the state, also the local name of the roads that make up the through route. These will all be placed on sign boards along the highways. The signs will read for example, "Route 1, Lincoln Highway, Lancaster Road." Route 1 is the route number for the Lincoln Highway in the state of Pennsylvania, the Lincoln Highway, of course, being the name of that route for its entire length in the state. Lancaster Road is one of the local roads that comprise part of the Lincoln Highway.

Control of Public Utilities on the Highway

While public utilities have rights under the law or by franchise to locate their facilities on the highways, the actual location, manner of construction or reconstruction is governed by permits issued by the Department of Highways. This applies not only to the 10,337 miles on the state highway system but also to the 90,000 miles of township and county roads in Pennsylvania.

Vehicular Control

The department's control of vehicular traffic is complete and covers not only the use of vehicles on state high-

ways, but also on the county and township roads. The only diminution of authority is the right granted to cities to impose such restriction as they may deem necessary as to the routing and time of passage of vehicles through their limits. This applies particularly to heavily loaded vehicles.

No one can operate a motor vehicle unless they have been examined by the department and are given a certificate to the effect that they are qualified as an experienced operator.

The legal speed limit for passenger cars is 30 miles an hour and for trucks from 12 to 24 miles an hour, depending upon the weight and whether or not they are equipped with pneumatic or solid tires.

Size and Weight of Vehicles

The weight limitation for motor trucks fixed by law in the different states has led to confusion and a prejudice against motor trucks. This was largely due to the engineers, motor truck interests, and other business interests agreeing upon a limit of weight for the whole state rather than fixing a limit of weight for different classes of highways; for example, terminal highways, through-route highways, and feeders of through-route highways, etc., state highways, extending several miles outside a large center of population connecting with another large center of population or an industrial center, are similar to heavy traffic city streets and they should be built to carry loads of a greater weight than the main highways traversing outlying sections of the state. Likewise, main highways traversing outlying sections of the state should be built to carry heavier loads than the secondary highways, etc. In other words, instead of making a law permitting vehicles of a maximum weight to travel over every highway in

the state, the law should be made with a view to fixing the maximum weight on different classes of highways.

This might be termed "the economic motor truck load for state highways." For example, where there is considerable business that can be carried economically by the heavier trucks, it would pay to build the road to carry the heavier loads, but there is no justification for building all of the roads to carry the heaviest loads just for the sake of accommodating one business concern or an occasional maximum weight load.

All of the roads, however, should be built to carry passenger traffic and medium and light truck traffic. As a matter of fact, the truck traffic today really divides itself into this suggested classification of weight limitations. On the heaviest truck traffic road in Pennsylvania, which is a terminal highway, less than two per cent of the number of truck loads are over 24,000 pounds. The truck traffic is only ten per cent of the total traffic. Therefore, the number of loads over 24,000 pounds on this terminal highway is only about two-tenths of one per cent of the total traffic. On a main north and south highway connecting New York State with Pennsylvania, the loads over 24,000 pounds are only two hundredths of one per cent of the total traffic. Bear in mind that one of these roads falls into the terminal area state highway class and the other in the main state highway class, both of which I am advocating should be built to carry future heavy motor truck traffic. It is the class of highways where the indications point to no necessity whatever for building them for the heaviest motor truck traffic that I am advocating should be built to carry only light and medium truck traffic as well as the passenger traffic. All highways, however, should be built so that what-

ever money is put into them will not be wasted but will be part of the cost of the future construction of the highway. This makes it very important to make studies with respect to the probable future traffic before anything is done on any highway.

The long and short of this brief discussion on the weight of vehicles is that the roads should be built to carry the maximum truck load that can be justified from an economic standpoint, but it is evident that the maximum truck loads can only compete with the railroads within a limited area. Therefore, it is obvious that the blanket limitation such as exists in the laws of most of the states now providing for a maximum weight truck load for all roads throughout the whole state, is not sound.

Under the present laws of Pennsylvania the size of motor vehicles is restricted, the maximum weight of a truck being 26,000 pounds with 19,500 pounds the maximum legal weight on any axle and 800 pounds per inch width of tire, the maximum weight on any wheel.

Public Information and Service

The schedule for applying the bituminous surface treatments and oiling on the different roads is broadcast by radio and is sent to hotels, garages, etc., throughout the state for the information of the traveling public.

(1. Detour Information.) As an aid to tourist travel the department publishes each week during the construction season a detour map which is broadcast all over the state and sent to hotels, garages, etc., also in neighboring states, showing the location and giving the latest information in connection with all detours.

(2. Tourist Guide.) The department publishes a tourist guide giving all the desirable information relative to

the scenic highways, summer resorts, camping sites, etc.

Historical Site and Information Signs

Signs are erected calling attention to all important historical sites and where highway routes pass rivers and streams, signs are placed giving the name and other pertinent information. Signs are also erected on either side of boroughs and small communities through which highway routes pass stating the name and date of incorporation. Signs giving altitude are placed on all summits on the mountain highway routes. It is the policy of the department to erect information signs at all locations of interest to the travelling public.

Camping Sites

Provision has been made for camping facilities for tourists along some of the main traveled routes.

Æsthetic Considerations

(1. Planting of trees and grass.) The Department of Highways co-operates with the State Department of Forestry in the planting of shade trees along state highway routes, and with the State Department of Agriculture in planting grasses on unstable slopes.

(2. Vistas.) It is the policy to widen the roads to arrange for vehicles at locations on highway routes where there is an opportunity for an unusual view. In many such locations a vista is arranged for by trimming the branches of the trees to provide for an unobstructed view.

Highway Transportation

By J. GORDON MCKAY, PH.D.

Chief, Division of Highway Economics, U. S. Bureau of Public Roads

HIGHWAY transportation deals with the movement of persons and goods over the highway, and concerns the instruments of transportation, the highway and the vehicle, as well as the services rendered by these transportation instruments. The highway and the vehicle are means to an end, the production of highway transportation services.

The United States Bureau of Public Roads, in co-operation with several state highway departments, is conducting a series of highway transportation surveys to determine the fundamental facts and principles of highway transportation to guide highway engineers in the economic planning and construction of highway systems to serve present and future traffic needs.

The principal purposes of these surveys are as follows:

1. *Highway administration and engineering data*

1. To determine daily, seasonal and yearly traffic flow and distribution on state highway systems. (See chart on page 128.)

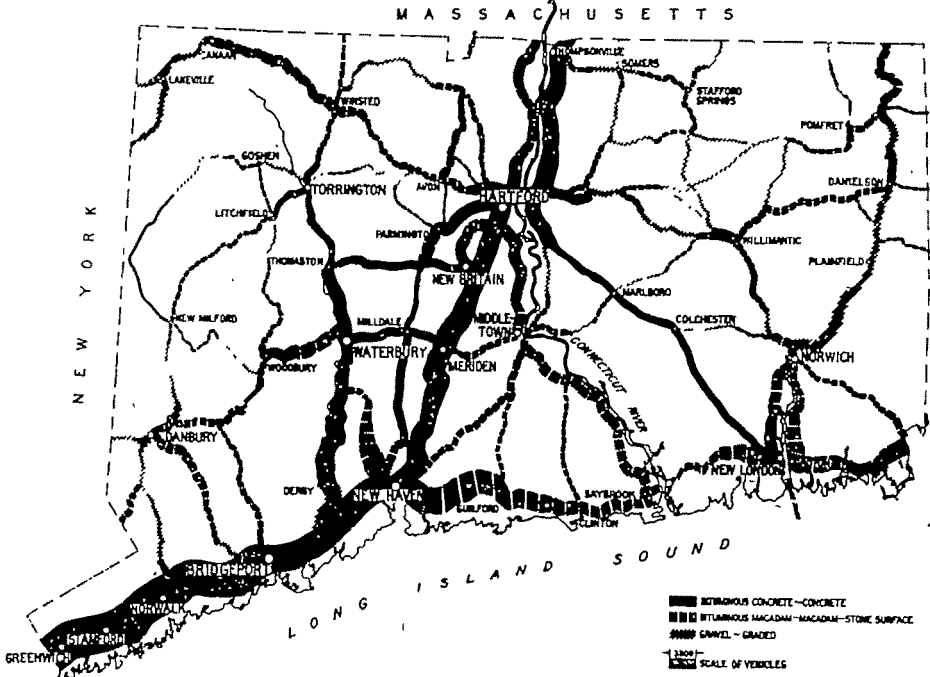
2. To estimate future traffic on state highway systems.

3. To determine the relation of traffic density to the factors responsible for the growth of traffic, such as motor vehicle registration, production and population.

4. To classify highways as industrial, high, medium, or low-type traffic routes based on (a) passenger car and motor truck density and (b) motor

CHART 1

AVERAGE DAILY TRAFFIC ON CONNECTICUT HIGHWAY SYSTEM PASSENGER CARS AND MOTOR TRUCKS SEPT. 1922 TO SEPT. 1923



U. S. BUREAU OF PUBLIC ROADS 1924

truck capacities, gross loads and wheel loads.

5. To determine the maximum loading and frequency of critical loads on the highways as an index of pavement width and design requirements, and to establish factors of highway traffic width and design for highways contiguous to large centers of population.

6. To measure the effect of congestion at intersections and "bottle necks" upon the rate of traffic flow.

7. To estimate the extent to which the improvement of old or the opening of new traffic routes is economically justified.

8. To correlate traffic loads and density on the highways with highway construction and maintenance costs.

9. To determine the type and volume

of traffic on the highway as an index to the allocation of highway construction and maintenance funds.

10. To determine the distribution of motor truck loads and the amount and frequency of motor truck overloading.

11. To compare the cost of various types of highway improvements such as relocations, grade reductions, elimination of grade crossings (both rail and highway) with the estimated saving in transportation costs resulting from such improvements.

12. To compare the earning value of the state highway system (based on passenger miles and freight ton miles) with the present worth of the highway system using replacement value minus depreciation as the basis of computing present worth.

2. *Highway economic data*

1. To obtain highway transportation information concerning the volume of tonnage shipped by motor truck, marketing methods, and the relation of highway transportation to other types of transportation.

2. To determine the mileage zones of motor truck haulage and the relation of the type of commodity hauled to such zones.

3. To determine the net tonnage of freight transported by commercial trucking companies.

4. To determine the situs of ownership of passenger cars and motor trucks operating over the highway systems.

5. To estimate the value of motor truck net tonnage hauled over the highway systems.

6. To determine the type of origin and destination as well as the origin and destination of net tonnage of commodities transported by motor truck over the highway systems.

7. To obtain information concerning the relation of motor truck transportation to other methods of transportation, particularly as to competition, rates, operating schedules and delivery time in the short, middle distance and long haul mileage zones.

8. To obtain data concerning haulage practices of motor truck operators and the volume of tonnage transported by motor truck between various cities and areas of value to governmental agencies charged with the regulation and control of highway transportation.

9. To estimate passenger car business and non-business usage of highways.

10. To determine the proportion of farm traffic on the highways.

In 1900 highway transportation was a local movement consisting almost exclusively of horse-drawn vehicles.

In 1899, 3,897 motor vehicles were manufactured in the United States; in 1923 the number of vehicles produced increased to 3,938,206. The rapid growth in motor vehicle registration in the United States is an index of the present significance of highway transportation. Registration of motor vehicles increased from 1,258,000 in 1913 to 15,127,000 in 1923, an increase of approximately 1,200 per cent. Highway traffic increased 47 per cent in California from 1920 to 1922 and 48.8 per cent in Connecticut during the same period.

VARIETY OF NEEDS MET BY TRUCK

The wide variation between the size of traffic units on different roads, with large truck capacities and heavy loads on some highways and small truck capacities and light loads on others, clearly indicates the necessity for different types of highway construction and design to serve present and future traffic needs on different routes. A highway on which 20 per cent of the trucks are 5-7½ tons capacity requires a heavier and more substantial type of improvement than a highway on which there are no truck capacities larger than 2½ tons. Over 20 per cent of the truck traffic on the Lincoln Highway between Philadelphia and Ardmore, Pennsylvania, is 5-7½ ton trucks, while on the Erie—Meadville, Pennsylvania, highway 85.2 per cent of the trucks are 1-1½ ton capacities with no trucks exceeding 4 tons capacity.

The average passenger car trip in Connecticut is 46.6 miles; 35 per cent of the passenger car traffic is a business movement. Of the total vehicles on the highway but a small percentage are farm owned vehicles: 5.4 per cent in Maine and Pennsylvania.

Truck transportation on the Connecticut highway system contains an important element of interstate commerce.

Less than 50 per cent of the total truck-ton mileage on the Connecticut highway system consists of trucks operating entirely within the state of Connecticut, and 18.8 per cent consists of movements whose origin and destination are points outside the state of Connecticut.

The motor truck is used to transport every conceivable type of commodity, perishables and non-perishables; solids, liquids and gases; light weight and heavy commodities; commodities of low value such as refuse and junk; and commodities of high value as silks and silverware. On the Connecticut highway 74.5 per cent of the net tonnage is manufactured products and 7.4 per cent products of agriculture. In California 48.5 per cent is manufactured products and 23 per cent products of agriculture.

PERCENTAGE OF TRUCK AND TRAIN COSTS

Although 350 different commodities were transported by motor trucks in Connecticut, it was found that 19 commodities made up 50 per cent of the total tonnage, and between 30 and 40 per cent of the total was consumption goods.

The significance of the motor truck in the distribution of goods is indicated by the fact that over one-third of the total trucks in Pennsylvania originate and terminate at retail and wholesale establishments.

The net ton mileage of motor freight transported over the Connecticut state highway system during the year period from September, 1922, to September, 1923, was approximately 88,000,000 ton miles. Average railway receipts for the period 1920-1922 were 1.16 cents per ton mile. On this basis the cost of transporting this tonnage by rail would have been \$1,020,800. Since motor freight consists of a large proportion of

higher classification freight than railroad freight, the actual costs to ship the above tonnage by rail would be considerably higher.

The total passenger miles over the Connecticut state highway system for the same period was approximately 1,439,000,000. Average railway receipts per passenger mile for the period 1920 to 1922 were 2.94 cents per passenger mile. Using average receipts per passenger mile and applying them to highway passenger mileage, the cost to the traveling public if traveled by rail would have been \$42,306,600. All this traffic would not move by rail, but on the other hand 2.94 cents per passenger mile is only 7.35 cents per passenger car mile, which is a very conservative estimate of the passenger car operating costs per car mile. Using average railway receipts per ton mile and passenger mile as a basis of calculation, the total cost of highway transportation over the Connecticut highway system from September, 1922, to September, 1923, was \$48,327,000.

Railway charges for maintenance of ways and structures from 1911 to 1922 were 18.3 per cent of operating income. Applying this same ratio to highway transportation in Connecticut the annual earnings of the highway system for the year period were \$5,762,000. The present worth (replacement value) of the Connecticut state highway system has been estimated at \$30,000,000 exclusive of right of way. On the basis of this valuation the Connecticut state highway system earned an annual return of 19.2 per cent for highway service.

REGULATING MOTOR TRUCK TRANSPORTATION

The efficient handling of freight at both ends of the railroad "line haul" is but one of the important fields of motor truck transportation. The com-

plete haul by motor truck between points of origin and destination, usually 30 miles or less, has developed into an important industry with a far reaching effect upon processes of distribution and our economic life. Motor truck service is usually a complete movement from a shipping platform to the receiving platform of the consignee without reloading or transfer. For goods requiring rapid delivery such as perishable food products, meats, bread and bakery goods, commodities of high value on which insurance and interest on capital invested during the period of shipment is an important factor, and for goods requiring rapid movement or delivery at a specified time, this service is especially valuable.

In general, motor truck transportation of freight in Pennsylvania and New England is primarily a short haul, non-competitive movement. Motor trucking companies are loosely organized, the competition between truckers is sharp and rates fluctuate rapidly. The recent trend indicates a gradual growth of larger and better organized companies which will ultimately insure stability of rates and service.

Regulation of commercial motor transportation companies is essential to the economic development of this new type of transportation. The unfair competition and practices of the irregular, "itinerant" operator are detrimental to the operation of reliable companies.

Regulation of commercial trucking companies franchised to serve a given trade territory will result in better service, stabilize the rate structure and insure a reasonable rate of return to operating companies. The primary reason for the motor truck transportation of freight is rapid and efficient service. The rate charged for haulage is second in importance to prompt and reliable service.

The principal fields of operation of the motor truck in the transportation of freight in the order of their importance are as follows:

1. Organized urban motor truck transportation of freight in congested terminal areas consisting of terminal to terminal transfers as well as pick-up and delivery service.

The congestion of incoming and outbound freight will be reduced, freight cars unloaded more rapidly and more efficiently utilized in the line haul of freight; and the incoming and outbound L. C. L. freight will move more rapidly.

2. Organized motor truck freight service supplementing existing rail and water service. This service is of two kinds. First the extension of freight service into districts without rail or water facilities or with inadequate service. This development is especially desirable to stimulate the growth of new trade areas. Second, the development of combination motor truck and rail transportation of L. C. L. freight. The development of this type of transportation is well illustrated by the Pennsylvania Railroad's transportation of L. C. L. freight by motor truck on divisions where passenger and freight train movement is congested and the transfer of L. C. L. freight to motor truck lines increases the efficiency of train and freight movement. The basis of the development of motor truck transportation by the Pennsylvania Railroad is twofold. First, the prompt and reliable movement of L. C. L. freight; and second, increasing safety in train operation on heavy traffic divisions by partial elimination of "peddler" trains and steam cross-overs against the traffic.

3. The short haul transportation of freight primarily within the short haul trucking zone of 30 miles or less. The bulk of highway transportation of

freight is transported within this zone.

4. The long distance motor truck transportation of a few special commodities, such as household goods, in which rapid delivery and savings in packing and crating costs justifies the movement. The net tonnage trans-

ported by motor truck in the longhaul-zone is not important and it is doubtful if it will ever develop into a significant movement. The trend during the past two years in the New England territory has been to shorten rather than lengthen the haul of motor trucks in the transportation of freight.

Highway Location

By W. W. CROSBY

Location Engineer, Department of Highways, Commonwealth of Pennsylvania

SOME of the peculiarities of Boston streets have been attributed to their having been developed from paths through the woods located by cows, just as many of our country roads follow old game trails, but it would hardly be fair to say that our public highways have generally been located so unscientifically. On the other hand it is a fact that most public roads, except perhaps for those highways built in the Napoleonic and Roman eras, have been located on the bases of selfish and political interests.

GROWTH OF PUBLIC ROAD SYSTEM

The first settlers connected their dwellings with paths which have become streets. The first settlements tied themselves together with roads which have become main highways. As the settlements pushed westward and the country generally became more thickly occupied, the growth of the road system proceeded mainly on the same basis. Connections were made between individuals or small groups of individuals in their interests and for the means of locomotion then available, that is, successively for pedestrians, horse-back riders and slow-moving, animal-drawn vehicles. Relatively little change in the original routes cleared through the forests, or

marked across the plains toward feasible crossing of the streams, took place between the first use of the route as a foot path and the later improvement and use of the route as a roadway. With the establishment of the routes came the settlement of the lands along them and thus the further determination of the location of the existing roads.

Possibly an exception to the foregoing brief general statement should be noted. Some of the roads connecting settlements were built as toll-roads and in these cases usually the rudiments of scientific location were evidenced by such charter requirements as limited the length, breadth or grades.

As the importance of means of intercommunication particularly between centers of population increased, scientific considerations entered more and more to influence the lines and grades of roads. And as the communities organized into states and the Nation itself began to recognize the community of interest in the public roads and to assume the responsibility for at least the main roads, location questions began to crystallize in forms similar, in some ways at least, to those of the present time.

Originally the interest and respon-

sibility laid with a few individuals. That individual interest still remains and always will persist. But as the individual interest in other matters inevitably became subsidiary to the community interest, so the location of the highways from house to house and along property lines, where each owner gave one-half the right of way necessary for the road, or, in order to avoid damage to an individual farm land, the road location was detoured through less valuable land, that location became a matter in which a far larger number of people were vitally interested than those simply owning the land or living directly on the roadside.

The defective locations from the larger point of view of some of these older roads impelled communities or states to construct new roads more directly located and thus of greater general public convenience and value. After the union of the separate states, the more general interest in the public highway was evidenced by the improvement of interstate roads and indeed by provisions through the national Congress for national roads. In these broader conceptions some of the primary features of highway location have been manifest. For instance, in the Act of Congress in 1806 a national highway was ordered surveyed and built from Cumberland on the Potomac River, at the head of the canal from Atlantic tide water, to Wheeling on the Ohio River, then the head of navigation down the Ohio and the Mississippi to the Gulf of Mexico. In this act it was provided that the road should have no grades exceeding five degrees from the horizontal.

When the development of the public roads of the United States—more particularly perhaps, that of the more important or through roads, that is, roads of considerable length connecting important centers relatively far

apart or interstate roads—was interrupted by the discoveries and developments of steam railroad construction, the broader conceptions as to the location of highways wilted and practically became dormant. The growth of the public road system went on, but the matter of location reverted to the bases of local or individual interest, and of politics.

THE NEW NEED FOR SCIENTIFIC ROAD LOCATION

About thirty years ago there sprang up in some of the more progressive states a general public desire for better road surfaces, and modern highway work was begun in this country. By that time the public road systems of most of the states had grown to reach mileage figures, most of them unwieldy and to some extent unnecessarily high. To satisfy the demands for "all the year roads" required large expenditures, according to the ideas of the times, and it soon became generally accepted that a selection from the existing mileage would have to be made to keep within the means of the state and to produce the results needed. So the problem of selection became evidently a primary problem of highway location, in the broader sense, and it opened wide the door for political influence.

Naturally every inhabitant of the country wanted the improved roads to convenience him, and, equally, every community wanted the main highway to serve it. In the earlier stages of the legislation the acts were confined to the improvement of the existing roads, and the state authorities, to whom the administration of the law and the execution of the work was delegated, were given little, if any, opportunities to consider and effect changes of existing highway locations with a view

to improvements in them for the general benefit.

In some of the states the initiative for the selection of the roadways to be improved was left with the local or county authorities, and where the local or county interest did not accord with the more general public interest a deadlock might result. In some other states the legislature provided commissions for the selection of limited mileages of the existing public roads, which selected roads were to be improved by the states, but no provision was made for the consideration of new locations. In other states, of which possibly the most noted examples are New York and Pennsylvania, the selections from the existing public roads were made by the legislators themselves. In Pennsylvania, out of some 85,000 miles of existing public roads in the state, the legislature selected approximately 11,000 as the state highway system to be "taken over by the State Highway Department from the several counties or townships of the state" and when so taken over "to be constructed, improved and maintained by the State Highway Department at the expense of the Commonwealth." The Pennsylvania legislature provided this "system of state highways" should form and be "much traveled roads or routes between the county seats of the several counties of the Commonwealth and much traveled roads or routes leading to the state line and between principal cities, boroughs and towns" and then "more particularly described and defined" them by numbers, by termini for each numbered route, and by villages, settlements, boroughs, towns or other identifying and recognizable points through which each route should pass between its termini.

It can be readily appreciated from the foregoing that the opportunities

for and the probabilities of selfish and political influence seriously affected the selection,—that is, the location—of the routes of the state highway system established in this way. As a matter of fact many more routes were proposed than were established by the act and compromises in the legislature were numerous.

In these states, since the original establishment of the state highway system, those dissatisfied with it have with more or less success continuously attempted to modify or to add to the original selection (or location) by additional routes similarly described. In the legislative session of New York state this last winter the political influence for modification of the existing state highway system succeeded in passing an act through legislature which was vetoed by Governor Smith, and his veto message embraced the following phrases in comment on the legislative act. He referred to the addition of modified routings as "laid out as a matter of political favor" and as comprising "dead end roads," "parallel roads," "roads in sparsely settled sections." He further expressed himself to the effect that road location was "not a legislative function" but that it was "administrative and best carried out by the state's engineers."

Commenting on and supporting Governor Smith's action the *Engineering-News Record* for May 15, 1924, said editorially in regard to road location that "only trained officials may assume to undertake the solution."

Here we have, for the first time perhaps, clear recognition by high authorities of the scientific basis on which road location—which, of course, involves selection—should rest.

Another state nearly twenty years ago approached her location problem,—that is, the selection of a limited

mileage from the total mileage of public roads in the state,—by the legislative creation of a commission authorized and directed “to select such a system of main market roads in and throughout the state as could reasonably be expected to be improved with the funds provided”—\$5,000,000. Again note the limitation by the word “selection” to the then located roads and the absence of even any suggestion, to say nothing of authority, for revising the existing locations from scientific standpoints. In spite of the fact that the average cost of road improvement per mile in the state to that time had been kept down to \$8,000 per mile, the commission, composed of four professional politicians, two scientists and a business man, selected over 1,200 miles of the existing roads under the act. This was done by the politicians referred to, in spite of the protest of the scientists and the business man.

The instances above cited are brought forward, not as horrible examples, but as reasonably fair illustrations of how road location has up to the present time and generally been based, as first stated, on other than scientific fundamentals.

WHAT MAKES A HIGHWAY

In the Pennsylvania law, however, appears the first real recognition of the fact that other bases than those of political and selfish interest may effect the location of highways. That law provides, in a section subsequent to those establishing in detail the numbered routes, that the State Commissioner of Highways may change or divert the present location of the roads or routes of the state highway system whenever it shall appear to him that “any part or portion of a state highway as now defined and described” shall be “dangerous or inconvenient,” exces-

sively or unreasonably expensive in construction and repair, “either by reason of grades, dangerous turns or other local conditions.” This was certainly a step forward, even though official legal construction of the act itself has resulted, practically, in limiting the relocations found desirable to stretches of the existing highway between points mentioned in the act locating the highway in question.

The solutions of most of the problems connected with road improvement have been begun with the road surface. It has taken time and a general awakening of interest in the act to uncover the fundamentals and to expose them for examination and comprehension in order to properly solve these problems for satisfactory superficial results. And it has required them and the development of the automobile to expose the problem of highway location in all its importance, to direct public interest toward the problem, and to set scientists and economists to work at comprehending it and establishing theories and formulae for its solution.

In relatively recent years the public has acquired some comprehension of city planning and some progress has been made in the science of it. Most cities have like Topsy “just growed” though one at least—our own national capitol—has developed along a well defined and preconceived plan. But all progressive cities have been brought to considering possibilities for correcting through proper planning their defective lay-outs even at this late date, and wherever new cities or villages seem conceived to be born nowadays, plans for their development are prepared in advance. Similarly regional planning for areas around or adjacent to cities is attracting attention and being studied. The incentive in this latter matter is undoubtedly the auto-

mobile, with its increased radius of action for the transportation of both persons and goods. With the further development and improvement of the automobile, which is sure to come, will not this "regional planning" be extended to far greater areas or, at least, to embrace in the near future the connection of skillfully planned regions by suitably located highways?

It is hardly to be expected that the old roads will entirely disappear in any event. It would be absurd for any man or any group of men now to attempt to impose on the map of Pennsylvania a system of state highways aggregating ten or even twenty thousand miles in length, disregarding the existing roads and considering only the larger centers of activity for connection and the topography of the country as the controls of the lines. Even should an apparently reasonable system be thus proposed, no one could say with confidence that such a system would continue to be satisfactory by the time it could be built.

On the other hand every one knows from his own experience in traveling over the public roads that absurdities of location are constantly to be met. They vary from a little detour forced on the local traveler by the ramp, leading up into a farmer's barn placed too near the road and thereby obstructing to a greater or less extent public use of the road purely for the convenience of the individual, to the detour forced on the traveler over longer distances who has to go two or three miles further than should be necessary, because the public highway improved between two large termini swings off to one side for the benefit of some small village or settlement, which latter contributes very little to the traffic on the through road. Or it may be that the truck carrying produce to market from a considerable dis-

tance has to consume excessive time and fuel in following the old road on bad locations with unnecessary grades that now are of no advantage to any one.

The science and art of steam railroad location were exhaustively set forth in a monumental work¹ many years ago. They have received the benefit of wide discussion and investigation since, with the progress naturally to be expected. But the application of the conclusions therefore cannot be applied to highway problems except in a most general way because of the great changes in the character of the motive power and vehicles. However, the problems of highway location are being recognized and, here and there, analyzed at last.

The development of the automobile is largely responsible for a recognition of the importance of proper highway location. Solutions of location problems will not be established before they are needed generally, and in some of the more progressive states circumstances already compel attempts at the solutions of some problems by tentative methods and formulae.

The State Highway authorities of Pennsylvania are confronted with the responsibility and duty, under the legislative act before referred to, of obtaining at least proper locations for the state highway system between the points fixed by the legislature, some of which are miles apart on any route. If now the route shall be, in the opinion of the State Secretary of Highways, of secondary importance, that is if it shall perhaps merely parallel and supplement a better, more popular, or, for some other reason, more important route between two main centers of population and shall not have been accepted as a section of the Federal

¹ A. M. Wellington's *Economic Theory of Railway Location*.

Highway System established by acts of Congress, the existing roadway will determine the improved roadway unless it can be demonstrated that the present lines and grades are dangerous and inconvenient to the public or would be excessively expensive to improve, to maintain and to operate as a public highway. In the case of a primary route,—that is, a route between important points which has been established as a section of the Federal Highway System,—greater scrutiny must be given to the present location of the highway in order that the intent of the act and the duties of the department under it shall be fulfilled.

ANALYZING TRAFFIC CONDITIONS

Directness of routes between termini is important and every possible effort to avoid unnecessary length between the termini must be made by taking every profitable advantage of the topography. The speed of traffic nowadays, which the automobile has increased from an average figure of perhaps five miles an hour and a maximum of ten or twelve to an average figure of twenty-five miles an hour and a maximum of possibly fifty, must be carefully regarded with a view to preventing accidents being caused by too sharp turns in the roadway or such obstacles to vision and speed as defective location might bring about. Again, while as the old saying goes, "the bale of a bucket is no longer lying down than standing up," it is recognized that somewhere between the level grade and an allowable maximum the lines and grades of the roadway may vary with advantage to the road users. Generally no sign of recognition of these principles is given by the old road locations, and it, therefore, becomes necessary in considering the suitability of the old roadway to apply these principles in order to insure that

improvement which will give the greatest possible satisfaction to modern traffic.

In order that excessive expenditures may be avoided, if possible, and at the same time that sufficient expenditures for satisfactory results shall be made where necessary, it becomes imperative to know the amount and character of traffic using any section of highway under consideration for improvement and as far as possible to estimate the proper changes in traffic over that section after the improvement shall have been made and during a reasonable period of expectation for the life of the improvement.

From a knowledge and study of what the present traffic is on a main highway, of the developments existing or apparently probable along the highway, and of the character and circumstances of the termini of the route comprising the particular road in question, it is possible to estimate fairly accurately the needs, including those of location, for the section in question. From such a study and knowledge of existing conditions one can certainly better estimate at least what the probable needs will be within a reasonable period. A curve of increase in traffic generally can be plotted from the statistics to date, and its direction indicated with reasonable certainty, although prolongation of the curve in the indicated direction too far cannot now be safely made. As the traffic is resolved into its component parts, such as pure pleasure traffic, semi-business traffic, commercial traffic, trucking, etc., the greatest care must be used in projecting the separate curves, even when the limited information at hand makes their plotting to date possible.

STUDIES OF PENNSYLVANIA HIGHWAY DEPARTMENT

There is great need for further investigation on these lines. Realizing

this need, the Pennsylvania Highway Department is devoting a great deal of attention to investigations and studies of this character. Some information has been accumulated and some conclusions tentatively reached. Those of the latter that are regularly used may be conservative, but it is believed they are at least safe.

Let us suppose that the legislative act provides for a state highway running northerly "from D to R by way of the town of F"; that this highway is of primary importance in the state system; that D is quite a sizable market and shipping center for a prosperous surrounding country as also is R; that F is a minor intermediate point without extraordinary characteristics. The old road runs from D to F about as directly as the topography will permit, but from F toward R wanders around behind some hills, over some others, and finally comes back to the direct line between D and R at the point B, having covered some ten miles of distance between D through F and around and back to B, from which point it runs on fairly directly to R, the legislative terminus of the route.

In the preliminary surveying of the old existing road, it becomes evident that a much more direct and shorter line with better grades can be obtained from F to B by abandoning the old road beyond F and taking a new line for the state highway down the valley a couple of miles, at the maximum, to the east of the old road and rejoining the old road close to the point where it enters B. Estimating the cost of improvement in either case and on a basis of similar results, of course, it is found that, owing to the easier grades, shorter length and other advantages of the new route, the first cost for improvement will materially be reduced by the selection of the new location.

This in itself might mean to justify—in fact, to demand—that the Secretary of Highways take the new location for the state highway, under the requirements of the legislative act for economy in construction. But let us suppose that for some reason or other the estimated costs should be practically the same in either case. Naturally there will be opposition to the selection of the new route. For instance, the old road, as we may grant in this particular case, leads through a well-developed and fairly thickly-settled, prosperous, farming community, while the proposed new line runs through woodland and undeveloped territory between F and B. But there is another important factor to be considered, and that is the relative costs of traffic operations over either route.

It develops that on this route we are discussing traffic counts have shown an average, between F and B, of 750 passenger cars and 100 trucks per day. The life of the improvement proposed will be at least twenty years. At any rate that is within the life of the bonds by means of which the improvement is to be made, and the construction costs must be amortized within the period. If, as we have assumed, they will equal in each case we may neglect them in the comparison. The operating costs,—that is, the known average annual cost per mile for state highway maintenance plus the actual cost per mile for operating the motor vehicles—will give the cost per mile to the public of either route. Double the actual number of the above counted vehicles must be taken, because experience shows at least that increase in traffic is to be expected on any unimproved section of the state highway system of Pennsylvania when its improvement shall have been completed, and that this increase will certainly occur in ten years from the time of the

improvement if not usually much before that.

The resulting comparison of operation costs will show in twenty years an aggregate difference of between three and four million dollars in favor of the shorter and more direct line, and the decision as to which line should be selected by the Commissioner of Highways is relieved of all uncertainty. There can be no question in such a case as this but that the public interest must take precedence over the local and individual interests and the shorter and more direct location for the primary state highway route be adopted.

It is in this way that the problems of location in Pennsylvania are being approached. Few cases are as simple and as clearly solved as the one above stated, which is rather briefly described but really is an actual recent case. The department's policy is to adhere to the old rights of way unless a relocation is shown to be clearly advisable from economic or engineering bases. The economic arguments for relocation must be clearly established by existing facts or those recognized as inevitable. The engineering bases for relocations are those brought up by the establishment of certain maximum grades (the Federal Government has placed a limit of 7 per cent as the maximum grade acceptable on the roads receiving Federal aid, which means practically the entire primary system of the Pennsylvania state highway) and certain minimum radii for curves (the internationally agreed upon minimum is a radius of fifty meters, but the Pennsylvania minimum sought is nearer twice this radius), together with the possibilities discoverable for the most direct and shortest line between the fixed points of the route.

The surveys first made of the existing highway reveal its defects from

these viewpoints as well as its advantages from other angles as a final location. The effort is first made, when considering its improvement through the points mentioned in the legislative act describing it, to adjust the lines and grades of the existing roads to within the limits of acceptability for both and to estimate the cost of so doing. The possible alternatives securable by relocation are then carefully investigated and their costs estimated. The costs of operation based on the known traffic and the probable traffic within twenty years are then compared and in that way an estimate is reached as to how the general public interest may be effected by different locations of the roadway. When this shall have been done the effects of the different locations under consideration, on the locality and the individuals directly concerned, are carefully investigated. Usually there is little difficulty in having these interests presented for consideration, while the public interest, *i.e.*, "the greatest good to the greatest number," seldom has corresponding advocates in evidence and usually remains merely the obligation or duty of the Department and the Secretary of Highways.

FUTURE GROWTH AND PROGRESS

While in Pennsylvania progress is being made toward the scientific location of state highways, and it is believed Pennsylvania leads and is much farther advanced on these lines than any other state, it is equally true that all are still "pioneering" along this line. The science of highway location is very young and immature. For instance, there is very little data really established to prove what maximum grades should not be exceeded by state highways improved for the convenient and economical operation of motor trucks or passenger automobiles or a

combination of both. Some praiseworthy experimental work toward this end has been done by one or two individuals and it is on the results of their work that the present conclusions are based, even though those experimenters admit the insufficiency of their data.

It is impossible as yet to visualize very far ahead the probable developments of automobile transportation and to plan with certainty for satisfaction for it ten years hence with road improvement work to be done now. Whether still heavier and larger loads are to be carried by super-trucks on the highways, or whether goods transportation over the highways will be done by trains of trailers with each unit of the train even within the maximum load limits now prescribed, is a matter on which there is at present no general agreement of opinion and which probably depends largely, if not entirely, on the inventive genius of automobile engineers, whose offspring are not yet clearly indicated. Yet the plans of the highway engineers concerning road location will be materially affected as conclusions on these questions shall be reached.

At present only a small amount of the total traffic over the state highway system extends for more than fifty miles from the centers of population, but even this radius is considerably greater than it was a few years ago

and entirely different from the corresponding figure before the advent of the automobile. As the automobile has developed the figure has increased, and so it may be expected to increase for both commercial and pleasure traffic. This enlarges the field for problems of highway location and increases their importance.

Some states have profited materially by taking advantage of their natural scenery. Pennsylvania certainly is equipped to do so and probably the best opportunity for accomplishing this end is offered by the improvement of the state highway system. The economic and engineering problems are complicated by the psychological factors thus introduced and to which it is difficult, at best, to assign arithmetical equivalents in the equations.

The foregoing perhaps suggests rather than demonstrates the importance of highway location, the complexities of its proper consideration, and the efforts of the Pennsylvania State Highway Department to keep at least abreast of the times in this feature of its work. It is hoped that the reader may be convinced at least that the Pennsylvania Highway Department has recognized the development of highway location problems proceeding from automobile development and is also making a sincere effort to solve them.

Taxation of Motor Vehicles in the United States

By JAMES W. FOLLIN

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I. MODES OF TAXATION

FEDERAL, state and, in some instances, municipal governments levy taxes on motor vehicles. The combined taxes in 1923 totalled nearly \$500,000,000, and were roughly in the proportion of 33 per cent Federal, 64 per cent state, and 3 per cent municipal. The following is an analysis of the 1923 taxes:

EXCISE TAX	
Passenger cars	5% of selling price
Commercial vehicles	3% " " "
Parts, accessories, tires	5% " " "

OCCUPATIONAL TAX ON MOTOR VEHICLES CARRYING PASSENGERS FOR HIRE	
Seating capacity over 2, but not more than 7	\$10
Seating capacity over 7	\$0

During the past five-year period, the receipts from Federal taxes have exceeded \$600,000,000, and have averaged \$120,000,000 a year.

MOTOR VEHICLE TAXES IN 1923

Federal²

Passenger car	\$106,280,234	
Commercial vehicle	10,908,777	
Parts, tires and accessories	38,610,844	
Vehicles for hire	1,907,400	
		\$157,707,255

State³

Registration fees, including:		
Drivers' licenses	\$188,970,992	
Gasoline taxes	86,813,940	
Personal property taxes	75,000,000	
		300,784,932

Municipal⁴

Motor vehicles	13,079,210	
Grand total		\$471,571,397

Figures taken principally from 1924 edition of "Facts and Figures of the Automobile Industry" of the National Automobile Chamber of Commerce.

II. FEDERAL TAXATION

On January 1, 1924, the following Federal taxes were operative:

¹ The author was aided in the preparation of this article by his assistant, Claude M. Stroup.

² Source, Internal Revenue Bureau, U. S. Treasury Department.

³ Source, Bureau of Public Roads, U. S. Department of Agriculture.

⁴ Source, Compilation by National Automobile Chamber of Commerce from reports by City Treasurers, and does not include property taxes on the garage or local or state taxes levied on retail business.

These Federal motor vehicle taxes have constituted an increasing percentage of the total receipts from internal revenue, being over 5 per cent of the total in 1923, and have more than supported Federal aid to the states for road construction.

III. STATE TAXATION⁵

State tax levies on motor vehicles may be divided into three general classes: registrations, taxes on motor fuels, and personal property taxes.

⁵ A complete digest of State Laws, in force on January 1, 1924, is available in the 1924 edition of "Special Taxation for Motor Vehicles," published by the Motor Vehicle Conference Committee, 366 Madison Avenue, New York City.

FEDERAL MOTOR VEHICLE EXCISE TAXES

Calendar Year	Automobile Trucks and Wagons	Other Automob- iles and Motor- cycles	Tires, Parts and Accessories	Total
1919.....	\$8,765,123	\$52,860,310	\$30,735,395	\$92,360,828
1920.....	15,134,594	88,128,363	50,944,562	149,207,519
1921.....	8,245,404	51,237,358	40,484,660	99,967,422
1922.....	9,583,212	69,856,599	35,353,589	114,793,400
1923.....	10,908,777	106,280,234	38,610,844	155,799,855 *
				\$612,129,024

* Does not include \$1,907,400 Federal tax on motor vehicles for hire.

Registrations

Registrations include the following more or less distinct groups:

Passenger motor vehicles
 Commercial motor vehicles
 Motorcycles
 Tractors
 Trailers
 Motor dealers
 Passenger carriers
 Property carriers
 Motor vehicle operators
 Registration of titles

The bases for determining fees for the registration of passenger and commercial vehicles vary widely between the several states, and for a complete analysis of the subject, the reader is referred to other sources.⁶ The various state regulations have been summarized, however, in Appendices 1 and 2 to this paper, reference to which will indicate that in the case of passenger motor vehicles, the most popular basis is the rated horse-power of the motor, and the weight of the vehicle as the second most widely used basis. With commercial motor vehicles, the carrying capacity is the predominating basis for the registration fee.

⁶ See the article, "Motor Vehicle Fees and Gasoline Taxes," by Henry R. Trumbower, *Economist*, U. S. Bureau of Public Roads, in the September, 1924, issue of *Public Roads*, Vol. 5, No. 7.

Forty-two states use the calendar year as the registration year. All but two states, and the District of Columbia, grant periodic reductions in registration fees when registration is made after a part of the registration year has expired. Two states grant a uniform reduction of one-twelfth per month. Exactly one-half of all the states reduce the registration fee to 50 per cent of the annual fee when six months of the registration year have passed, while ten other states make such a reduction after seven months, six others after eight months, and four others after nine months. Full information in regard to reduction of fees is shown in Appendix 3.

Reciprocity between states with regard to motor registration is effective in whole or in part with only seventeen states. Registration of non-residents is required after the following periods in the cases of the other states:

15 days.....	2 states
20 days.....	1 state
1 month.....	7 states
2 months.....	5 states
3 months.....	14 states
4 months.....	1 state
6 months.....	2 states

All but fourteen of the states license motor vehicle operators, usually on an annual basis, although in a few states;

the licenses are valid until cancelled. The original fee in some instances is greater than the annual renewal fee. Distinction is also made in some states between paid drivers and non-paid drivers, or, as it is frequently expressed, between operators for hire and not for hire. Several states now require examination of applicants for license with regard to their knowledge of car operation and motor laws and regulations. In Pennsylvania, for example, an applicant for license secures a learner's permit, good for thirty days, which can be used if a licensed operator is in the car and in control of the car's operation. An operator's license is obtained if the applicant passes successfully the examination given. A summary of the regulations of the several states is given in Appendix 4.

With the exception of North Dakota, the several states regulate motor dealers through annual registration, charging fees for car tags which in general are higher than those otherwise charged. The most common practice is to charge a fixed amount to cover a certain number of sets of dealer's tags and an additional amount for each extra set of tags. The majority of states also differentiate between motor vehicle and motorcycle dealers.

Eleven states levy no taxes on property and passenger carriers as such; fifteen states levy such a tax on passenger carriers only, while eleven states place the same taxation on common carriers irrespective of what they carry. The remaining states levy varying taxes on these two types of common carriers.

Motor Fuel Taxes

Since 1919, a new form of levy against motor vehicles has gained rapidly in popularity, namely, a tax on motor fuels, commonly referred to as the gasoline tax. Only two states

levied this tax in 1919, whereas in 1924, thirty-five states and the District of Columbia are collecting it. The receipts in 1923 were \$36,813,940, and it is expected that in 1924 over \$50,000,000 will be received. The levies on gasoline range from one cent a gallon to four cents, with a concentration of states at a two-cent tax.⁷ A detailed collection by states is set forth in Appendix 5.

Personal Property Taxes

In thirty-five states and the District of Columbia motor vehicles are taxed as personal property. In thirteen states, they are not subject to such tax. The exact revenue secured is not definitely obtainable since it is mixed with personal property taxes in general, but on the basis of the value of the motor vehicles in the several states and the rates of taxation, estimates have been made of the amount.⁸ The revenue, moreover, is placed in the general funds of the states, counties or municipalities rather than being made available directly for highway work, as is the case of much of the revenue from other motor vehicle taxation.

IV. MUNICIPAL TAXATION

Information with regard to the extent and amount of municipal taxation of motor vehicles is meagre and only a general statement can be made. In a number of states, the municipalities are permitted to impose local taxes on taxicabs and autobusses, but in only nine states may municipalities collect from privately owned and operated motor

⁷ For a fuller discussion of this tax, the reader is referred to page 207, Vol. XIII, No. 4, April, 1924, issue of the *National Municipal Review*, and to page 1, Vol. 5, No. 7, September, 1924, issue of *Public Roads*.

⁸ National Automobile Chamber of Commerce in "Facts and Figures," 1924 edition, sets the figure at \$75,000,000 for 1923.

vehicle taxes in addition to those imposed by the state.⁹

The only comprehensive information available on municipal taxation was obtained by the National Automobile Chamber of Commerce through a questionnaire sent to treasurers of municipalities of over 5,000 population. Out of 1,497 such municipalities, 597 did not reply, but of the 900 (including most of the larger cities), which did reply, 560 reported no taxes and 340 showed total receipts of \$13,079,209, distributed as follows:

<i>Source</i>	<i>Amount</i>
Motor cars	\$1,248,335
Motor trucks	218,580
Busses	42,899
Taxis	198,896
Other common carriers	36,640
Personal property	2,661,448
Miscellaneous or unclassified . .	8,677,411
	\$13,079,209 ¹⁰

V. TREND OF TAXATION

From an annual revenue of \$954 for New York State in 1901, the first state to levy a registration fee, the receipts from registration have progressively grown, as other states adopted registration fees and motor vehicles increased, until, in 1923, \$188,970,992 was collected. Per vehicle registered, the collections have increased from \$3.20 in 1909 to \$12.50 in 1923. The tables in Appendix 6 and the accompanying chart indicate the trend of total registrations, total receipts and receipts per motor vehicle. The chart is drawn from information furnished in Appendices 7 and 8 of total motor vehicle registrations and receipts arranged by states, and from which detailed information can be obtained with regard to a particular state.

This information for each state is supplemented in Appendix 9 by the record of population per registered car from 1919 to 1923.

The increase in registration fees for commercial vehicles has been proportionately greater than for passenger cars. The average registration fee charged in the various states for a 5-ton truck in 1914 was only \$8.80; in 1921 it had advanced to \$96.52 and in 1924 to \$139.39. In Appendix 10, the average rates for 1½-ton, 3½-ton, and 5-ton trucks are compared, also the number of states are listed that charged fees within designated limits.

Assuming an average travel of 6,000 miles per registered motor vehicle in 1923, the registration fees exacted by the various states imposed an average tax of 0.208 cents per vehicle-mile, the lowest rate being 0.080 cents and the highest 0.439 cents. Gasoline taxes imposed an average tax of .041 cents per vehicle-mile, making the average combined state taxes per vehicle-mile, 0.249 cents. In Appendix 11, these average vehicle-mile taxes are listed by states.

Revenue and registrations are analyzed on the basis of population in Appendix 12. Receipts from state registration yielded only about eight cents per capita in 1913 and \$1.70 in 1923. Adding the Federal excise taxes for 1923, registration fees and Federal excise taxes were \$3.13 for 1923. Gasoline tax receipts for 1923 add approximately thirty cents per total United States population (or sixty cents per capita average for the thirty-five states where levied), while the estimate of state personal property taxes adds approximately seventy cents per total United States population, giving a grand total of over \$4.00 per capita during 1923.

⁹ See page 27, "Special Taxation for Motor Vehicles," 1924 edition, Motor Vehicle Conference Committee, 306 Madison Avenue, New York City.

¹⁰ For detailed collections by states, see pages 80 and 81, "Facts and Figures," for 1924.

APPENDIX I—BASIS FOR STATE LICENSING OF PASSENGER MOTOR VEHICLES
Amounts Shown Represent Minimum Annual Fee

Gross Weight (Vehicle Weight)		Horse Power		Horse Power and Gross Weight		Cost Price or Value		Flat Rate	
Delaware ⁵	.....	Alabama ^{1,4}	\$11 25	Arkansas	.....	Colorado Max.	.....	California	\$8.00
Florida	.....	Arizona	5.00	Indiana ⁴	.....	Minnesota	.....		\$5.00
Idaho	\$15 00	Connecticut ^{11, 2, 5}	15 00	Kentucky	.....	Oklahoma	.....		12.00
Iowa ¹⁰	10.00	Georgia	11.25	Maine ^{2, 5}	.....		.....		10.00
Illinois	8.00	Illinois ⁶	8 00	Michigan ⁵	.....		.....		
Nebraska ⁶	10 00	Louisiana	15.00	Rhode Island	.....		.....		
Nevada ⁹	.....	Maryland	.....	Texas	.....		.....		
New Hampshire ⁸	10.00	Massachusetts	10.00	West Virginia ³	.....		.....		
New York	8.00	Mississippi ⁴	5 00		.....		.....		
Oregon	15 00	Missouri ^{1, 4}	5 00		.....		.....		
South Carolina	6 00	Montana ⁴	7.50		.....		.....		
South Dakota	18 00	New Jersey	.....		.....		.....		
Vermont	14.00	New Mexico ⁴	.....		.....		.....		
Washington	10.00	North Carolina	12.50		.....		.....		
Wisconsin	10.00	North Dakota ^{12, 7}	5 00		.....		.....		
		Ohio ⁴	.....		.....		.....		
		Pennsylvania	.....		.....		.....		
		Tennessee ⁴	.....		.....		.....		
		Utah ⁴	.....		.....		.....		
		Virginia	.....		.....		.....		
		Wyoming	.....		.....		.....		
		District of Columbia	.....		.....		.....		

¹ Steam—at flat rate.

² Steam—at horse power.

³ Steam—same as commercials.

⁴ Electric—at flat rate.

⁵ Electric—at horse power.

⁶ Electric—at flat rate—tags extra.

⁷ Electric—at flat rate instead of horse power.

⁸ Gross weight of vehicle and seating capacity x 125 pounds.

⁹ Gross weight of vehicle and seating capacity x 150 pounds.

¹⁰ Gross weight and value.

¹¹ By cubic inch piston displacement for gasoline motors.

¹² Horse power, factory selling price and net weight.

APPENDIX 2—BASIS FOR STATE LICENSING OF COMMERCIAL MOTOR VEHICLES
Amounts Shown Represent Minimum Annual Fee for Pneumatic Tires

Tons Capacity (Carrying Capacity)	Gross Weight (Vehicle Weight Plus Load)	Net Weight (Vehicle Weight)	Horse Power	Tire Width	Chassis Weight
Alabama.....	\$15.00	Delaware.....	.....	.....	.....
Arizona.....	10.00	Florida ¹.....	.....	.....	.....
Arkansas ¹	26.00	Illinois.....	\$12.00	.....	.....
California.....	10.00	Missouri.....	7.00	.....	.....
Colorado.....	10.00	Nebraska.....	10.00	.....	.....
Connecticut ¹	18.00	Nevada.....	.....	.....	.....
Georgia.....	18.00	New Hampshire ¹.....	.....	.....	.....
Idaho ¹	22.80	New Jersey.....	10.00	.....	.....
Indiana.....	10.00	New York.....	18.00	.....	.....
Iowa ¹	18.00	Ohio ¹	8.00	.....	.....
Kansas.....	18.00	Rhode Island ¹.....	.....	.....	.....
Kentucky.....	22.00	Texas ¹.....	.....	.....	.....
Louisiana ¹	25.00	Wisconsin.....	10.00	.....	.....
Maine ¹	10.00	.....	.....	.....	.....
Maryland ¹	10.00	.....	.....	.....	.....
Massachusetts.....	10.00	.....	.....	.....	.....
Minnesota ¹	11.00	.....	.....	.....	.....
Mississippi ¹	11.00	.....	.....	.....	.....
Montana.....	12.00	.....	.....	.....	.....
Nebraska.....	12.80	.....	.....	.....	.....
New Mexico.....	15.00	.....	.....	.....	.....
North Carolina.....	10.00	.....	.....	.....	.....
Oklahoma ¹	15.00	.....	.....	.....	.....
South Carolina ¹	15.00	.....	.....	.....	.....
South Dakota.....	15.00	.....	.....	.....	.....
Tennessee ¹	5.00	.....	.....	.....	.....
Utah.....	5.00	.....	.....	.....	.....
Vermont.....	20.00	.....	.....	.....	.....
Virginia.....	15.00	.....	.....	.....	.....
West Virginia ¹	15.00	.....	.....	.....	.....
Wyoming ¹	15.00	.....	.....	.....	.....

Pennsylvania^{1,1,1}... \$15.00

District of Columbia. \$3.00

Oregon¹..... \$35.00

Different license fees for:

- ¹ Solid tires, pneumatic tires.
- ² Solid tires, pneumatic tires, air cushion tires.
- ³ Solid tires, pneumatic tires, metal tires.
- ⁴ Pneumatic tires as passenger; solid.
- ⁵ Trucks, \$1.00 extra.
- ⁶ Yearly reduction in fees in certain cases
- ⁷ Pneumatic; any others.

- ⁸ Electric—gross maximum weight.
- ⁹ Carrying capacity and horse power.
- ¹⁰ Carrying capacity and value.
- ¹¹ Gross weight and horse power.
- ¹² Net weight, horse power, factory price, tons capacity
- ¹³ Net weight and horse power.

APPENDIX 3—PERIODIC REDUCTIONS IN STATE REGISTRATION FEES
 All States but California, Illinois and the District of Columbia Grant Some Reduction
Proportion of yearly fee to be collected at the expiration of the following months of registration year

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th
94½% Kentucky Mississippi	88½% Kentucky Mississippi	76% Kentucky Mississippi Iowa Louisiana Maryland Ohio Oklahoma Rhode Island South Carolina Texas West Virginia	66½% Kentucky Mississippi 76% Colorado	58½% Kentucky Mississippi	50% Kentucky Mississippi Alabama Arkansas Florida Iowa Kansas Louisiana Maryland Missouri Montana Nebraska Nevada New Mexico New York North Carolina Ohio Oklahoma Oregon Rhode Island South Carolina Texas West Virginia Wisconsin	44½% Kentucky Mississippi 50% Georgia Idaho Indiana Minnesota New Jersey Pennsylvania South Dakota Utah Vermont Wyoming	33½% Kentucky Mississippi 50% Delaware Michigan North Dakota Tennessee Virginia Washington	26% Kentucky Mississippi Arkansas Colorado Iowa Louisiana Maryland Minnesota Missouri Ohio Oklahoma Oregon Rhode Island South Carolina Texas West Virginia	16½% Kentucky Mississippi 26% Idaho South Dakota	8½% Kentucky Mississippi None Iowa

Connecticut grants reduction of 8½ per cent per month after three months.

APPENDIX 4—STATE REGULATIONS FOR LICENSING OF MOTOR OPERATORS

Classified as to Whether Distinction Is Made Between Paid and Unpaid Operators. All Licenses on Annual Basis Except Where Noted. Amounts Shown Represent Annual License Fee

	Paid Drivers		Non-Paid Drivers		No Distinction Between Drivers	
	Original Fee	Renewal Fee	Original Fee	Renewal Fee	Original Fee	Renewal Fee
Alabama ¹	\$5.00	Perpetual	None required	None required		
Arizona.....	5.00	No renewal	" "	" "		
Arkansas.....	5.00	Same	" "	" "		
California.....	2.00	"	" "	" "		
Colorado.....	2.00	"	" "	" "		
Connecticut.....	5.00	"	\$3.00	Same		
District of Columbia..	2.00	Perpetual	2.00	Perpetual		
Florida ¹	2.00	Same	None required	None required		
Georgia.....	2.00	"	" "	" "		
Idaho.....	2.00	"	" "	" "		
Illinois.....	5.00	\$3.00	" "	" "		
Indiana.....	2.00	Same	" "	" "		
Iowa.....	2.00	"	" "	" "		
Kentucky.....	2.00	1.00	" "	" "		
Louisiana.....	5.00	Same	" "	" "		
Maine.....	5.00	"	2.00	Same		
Maryland ⁵	3.00	"	2.00	Perpetual		
Michigan.....	2.00	"	.50	Same		
Minnesota.....	1.50	1.00	None required	None required		
Missouri.....	3.00	Same	" "	" "		
Montana.....	2.00	"	" "	" "		
New Hampshire ² ...	5.00	2.00	3.00	\$2.00		
New York.....	5.00	2.00	2.00	1.00		
Oregon ¹	2.00	Same	None required	None required		
Texas.....	3.00	"	" "	" "		
Utah.....	2.00	"	" "	" "		
Vermont ⁶	3.00	"	2.00	Same		
Virginia.....	5.00	"	None required	None required		
West Virginia.....	3.00	"	1.00	Same		
Delaware.....					\$3.00	Same
Massachusetts.....					2.00	"
New Jersey ³					3.00	"
Pennsylvania ⁴					1.00	"
Rhode Island.....					2.00	"
Washington ⁶					1.00	"

No registration of operators: Kansas, Mississippi, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Wisconsin, and Wyoming.

¹ Half fee for last half year.

² Motorcycle also required—\$1.00 annually.

³ Motorcycle also required—\$1.00 perpetual.

⁴ Traction engine license also required—\$2.00 annually.

⁵ Half fee after August 1 for paid operators.

⁶ Renewals biennially.

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APPENDIX 5—GASOLINE TAXES, 1923 (From April 1924, issue of *Public Roads*)

State	Total Gross Receipts	Amount Applicable to Highway Work by or under Supervision of State Highway Department	Tax in Cents Per Gallon on Jan. 1, 1923	Tax in Cents Per Gallon on Jan. 1, 1924	Date on Which Change in Rate of Tax Became Effective	State	Total Gross Receipts	Amount Applicable to Highway Work by or under Supervision of State Highway Department	Tax in Cents Per Gallon on Jan. 1, 1923	Tax in Cents Per Gallon on Jan. 1, 1924	Date on Which Change in Rate of Tax Became Effective
Alabama.....	\$1,133,085 49		..	2	Mar. 1.	Nevada.....	\$115,843. 24	\$80,000 00	..	2	Mar. 20
Arizona.....	174,123 04	\$118,530 76	1	3	June 9	New Hampshire ..	163,064 64	161,823 10	..	2	Jan. 1, 1924
Arkansas ..	1,219,198 76	301,094 76	1	4	Jan. 1, 1924	New Jersey.....	165,000 00	166,750 00	1	1	..
California ..	2,618,893 00	1,269,446 00	1	2	Sept. 30	New Mexico.....	165,000 00	166,750 00	1	1	..
Colorado.....	846,353 12	403,017 73	1	2	Aug. 1	New York.....	2,909,604 74	2,909,604 74	1	3	Apr. 1
Connecticut ..	880,222 70	880,222 70	1	1	..	North Carolina..	461,081 71	..	1	1	..
Delaware.....	88,578 28	88,578 28	..	2	Jan. 1, 1924	North Dakota.....	..	..	..	..	..
District of Columbia	1,641,042 25	1,150,355 99	1	3	..	Ohio.....	599,000 00	599,000 00	..	1	..
Florida.....	1,602,603 49	247,666 65	1	3	July 1	Oklahoma.....	1,958,741 37	1,885,421 15	2	3	July 1
Georgia.....	396,467 18	396,467 18	1	2	Oct 1	Pennsylvania.....	5,490,622 66	..	1	2	May 24
Idaho.....	..	..	..	3	Apr. 1	Rhode Island.....	..	..	..	..	July 1
Illinois.....	2,906,428 25	2,514,755 83	..	2	June 1	South Carolina..	1,511,452 56	411,327 78	2	3	Mar. 23
Indiana.....	..	..	..	..	..	South Dakota.....	324,692 44	1,563,000 00	1	2	..
Iowa.....	..	..	..	..	..	Tennessee.....	312,358 38	811,712 30	..	2	Apr. 1
Kansas.....	680,435 80	680,435 80	1	1	..	Texas.....	1,215,623 30	911,712 32	..	1	June 15
Kentucky.....	754,437 85	754,437 85	1	1	..	Utah.....	104,092 76	104,092 76	..	2 1/2	Mar. 8
Louisiana ..	286,076 97	286,839 84	1	1	..	Vermont.....	163,772 81	163,772 81	..	3	Apr. 1
Maine.....	688,304 02	688,304 02	1	2	July 7	Virginia.....	1,556,920 68	1,037,947 32	..	2	June 27
Maryland.....	..	..	..	..	Jan. 1, 1924	Washington.....	1,223,749 66	1,923,749 66	1	3	Jan. 1, 1924
Massachusetts ..	..	..	..	..	..	West Virginia ..	366,490 00	366,490 00	..	2	July 27
Michigan.....	..	..	..	..	..	Wisconsin.....	140,161 62	140,161 62	..	1	Mar. 1
Minnesota.....	467,855 53	187,142 21	1	1	July 1	Wyoming.....	..	..	..	..	..
Mississippi ..	441,249 10	76,877 10	1	2	..	Total.....	\$36,813,939 61	\$21,528,559 18	..	..	..
Missouri.....	..	..	..	..	..						
Montana.....	..	..	..	..	..						
Nebraska.....	..	..	..	..	..						

1 One cent from Jan. 1 to Apr. 1; 3 cents Apr. 1 to Dec. 31, inclusive.

2 One cent from Apr. 22 to Dec. 31, inclusive.

3 Act passed by legislature, but referendum invoked Election November, 1924.

4 Constitutional amendment permitting a tax on gasoline to be voted on November, 1924.

5 To Dec. 1, 1923

6 Tax of 1 cent per gallon effective July 1 to Dec. 31, inclusive.

7 Approximate.

8 One-third of total receipts returned to counties for county highway work.

9 Collections from July 27, when tax became effective, to Nov. 1.

APPENDIX 6—TOTAL MOTOR VEHICLE LICENSE FEES, YEARLY REGISTRATIONS, AND AVERAGE RECEIPTS PER VEHICLE, 1901-1923¹

Year	Number of Vehicles Registered	Total Gross Receipts ²	
		Amount	Average per Vehicle
1901.	.	\$954	....
1902.	.	1,082	..
1903.	.	26,865	..
1904.	...	38,411	..
1905.	.	62,500	...
1906.	.	192,706	...
1907.	.	334,916	...
1908.	.	484,277	..
1909.	294,000	938,860	\$3.20
1910.	472,700	2,227,434	4.70
1911.	677,000	3,967,475	5.85
1912.	1,010,899	5,638,878	5.60
1913.	1,258,062	8,192,253	6.50
1914.	1,711,839	12,382,031	7.20
1915.	2,445,666	18,245,711	7.45
1916.	3,512,996	25,865,369	7.35
1917.	4,983,840	37,501,233	7.55
1918.	6,146,617	51,477,419	8.35
1919.	7,566,446	64,697,255	8.55
1920.	9,231,941	102,546,212	11.10
1921.	10,463,295	122,478,654	11.70
1922.	12,238,375	152,047,823	12.50
1923.	15,092,177	188,970,992	12.50
Total	.	798,314,310	....

CLASSIFICATION OF STATES ACCORDING TO AVERAGE MOTOR VEHICLE REVENUES PER VEHICLE

Average Revenues per Vehicle	Number of States in Each Class ¹										
	1913	1914 ²	1915	1916	1917	1918	1919	1920	1921	1922	1923
\$4.90 and less.	21	17	18	14	14	6	7	2	1	..	1
\$5-\$9.90	15	17	20	21	22	27	24	17	15	15	15
\$10-\$14.90	9	11	12	11	10	9	10	18	21	17	16
\$15-\$19.90	4	3	3	3	3	6	7	10	11	14	13
\$20-\$24.90	..	..	..	..	..	1	1	2	1	1	3
\$25-\$29.90	..	..	..	..	..	..	..	..	..	2	1
\$30-\$34.90	..	..	1	..	..	..	..	..	..	..	..
Total.	49	48	49	49	49	49	49	49	49	49	49

¹ Includes District of Columbia.

² These receipts do not include any gasoline taxes.

³ On account of the Supreme Court declaring the licensing law unconstitutional, no revenues were reported for Michigan.

—(From *Public Roads*, Vol. 5, No. 7, September 1924, Motor Vehicle Fees and Gasoline Taxes by Henry R. Trumbower, Economist, U. S. Bureau of Public Roads)

OF COMBINED PASSENGER CAB AND MOTOR TRUCK REGISTRATIONS FOR YEARS 1915 TO 1923, INCLUSIVE
(From April, 1924, issue of *Public Roads*)

TAXATION OF MOTOR VEHICLES

151

	1915	1916	1917	1918	1919	1920	1921	1922	1923
2									
3	11,034	21,636	32,873	46,171	53,888	74,637	82,866	90,052	120,042
4	7,753	12,300	19,890	23,905	28,979	34,601	35,611	38,034	49,175
5	8,021	15,000	28,693	41,458	49,450	66,082	67,408	84,695	113,300
6	163,797	232,440	306,916	407,761	477,460	533,633	680,614	861,807	1,100,283
7	28,384	43,206	57,400	83,244	104,865	126,255	146,739	162,328	188,966
8									
9	41,121	56,048	74,645	86,067	102,410	119,134	134,141	152,977	181,748
10	6,052	7,102	10,700	12,956	16,162	18,360	21,413	24,560	29,977
11									
12	8,009	13,118	15,493	30,490	35,400	34,161	40,825	52,792	* 74,811
13	* 10,860	20,718	* 27,050	54,158	65,400	71,014	97,937	116,170	151,990
14	26,000	46,000	70,034	104,676	137,000	146,000	131,976	143,423	173,589
15									
16	7,071	12,989	24,731	32,289	42,220	50,861	51,294	53,874	63,879
17	180,832	248,429	340,202	389,620	478,138	608,924	663,348	781,974	969,331
18	96,916	139,065	192,194	227,160	227,205	333,087	400,342	460,939	683,342
19	146,109	198,587	264,402	278,313	364,043	437,378	461,084	500,163	671,081
20	72,620	112,122	166,343	186,163	228,600	294,169	289,639	327,194	376,694
21									
22	19,600	31,500	47,420	65,884	90,008	112,688	126,802	154,021	198,377
23	11,380	17,000	28,394	40,000	51,000	73,000	77,885	102,284	136,632
24	21,645	30,972	41,499	44,872	53,425	62,907	77,637	92,680	108,609
25	31,047	44,246	60,943	74,896	95,634	102,841	136,249	165,624	199,361
26	102,683	186,809	174,274	193,497	247,182	274,498	360,732	385,231	481,160
27									
28	114,845	160,052	247,006	262,125	325,813	412,717	476,452	578,210	730,658
29	98,289	* 45,000	* 51,000	204,458	269,741	324,166	323,475	380,567	448,187
30	5,069	25,000	36,600	48,400	59,000	68,486	65,039	77,571	104,286
31	76,462	103,587	147,528	188,040	244,363	297,008	346,437	392,533	476,698
32	14,540	25,106	42,749	51,063	59,324	60,660	58,785	62,660	73,828
33									
34	59,000	101,200	148,101	173,374	200,000	219,000	238,704	266,654	280,053
35	1,487	4,919	7,160	8,169	9,305	10,464	10,821	12,116	15,999
36	8,571	17,508	22,267	31,625	39,000	34,680	42,039	48,406	69,604
37	81,648	109,414	141,918	155,519	190,873	227,737	272,094	342,288	430,958
38	5,100	8,228	14,086	17,047	18,082	22,160	22,669	25,473	32,032
39									
40	255,242	314,222	408,018	459,288	566,511	676,205	812,031	1,002,203	1,204,213
41	21,000	33,904	53,650	62,963	109,017	140,860	148,627	182,660	246,812
42	24,008	40,446	62,963	71,678	82,865	90,540	92,644	96,052	108,266
43	181,332	267,431	346,172	412,775	511,031	621,390	720,634	868,716	1,089,100
44	26,032	62,718	90,799	121,600	144,600	212,880	221,800	249,669	307,000

TABLE OF COMBINED PASSENGER CAR AND MOTOR TRUCK REGISTRATIONS FOR YEARS 1913 TO 1923, INCLUSIVE—Continued
(From April, 1924, issue of *Public Roads*)

1914	1916	1916	1917	1918	1919	1920	1921	1922	1923
16,447	23,585	33,917	48,632	63,324	83,332	103,790	118,198	134,125	165,962
112,854	160,137	230,578	325,153	394,186	483,117	570,164	689,589	820,737	1,043,770
12,831	16,362	21,408	27,046	36,218	44,833	50,477	54,908	66,083	78,312
14,000	15,000	15,000	38,333	55,492	70,143	93,843	89,836	95,239	127,467
20,929	28,724	44,271	67,158	90,521	104,638	130,895	119,374	125,241	131,700
19,769	17,618	130,000	148,000	163,000	80,422	101,852	117,025	135,716	173,865
40,000	140,000	192,961	192,961	251,118	381,210	427,693	467,616	526,238	688,233
2,253	9,177	24,076	24,076	32,273	35,336	43,616	47,455	49,164	59,525
8,475	11,499	21,833	21,833	22,553	26,807	31,625	37,365	43,881	53,778
3,984	21,357	55,661	55,661	73,228	94,100	115,470	139,200	168,000	218,566
40,253	38,823	60,734	91,337	117,278	148,775	173,920	185,359	210,716	258,284
3,159	18,279	20,571	31,300	38,760	60,203	80,694	93,940	112,763	157,924
3,161	79,741	115,645	158,637	196,263	236,390	293,298	341,841	382,542	467,371
4,428	8,976	7,125	12,523	16,200	21,371	23,926	26,866	30,637	39,531
339	2,445,666	3,512,996	4,983,340	6,146,617	7,565,446	9,231,941	10,463,295	12,238,375	15,092,177

* Cars registered during 1917 only; total, approximately 160,000.
 * Total cumulative registrations; annual registration not required.
 * Cars registered during 1915 only; total, approximately 36,000.

include nonresident registrations.
 State, approximately 138,000.

APPENDIX 9—PERSONS PER REGISTERED CAR, 1919-1923

State	1919	1920	1921	1922	1923	State	1919	1920	1921	1922	1923
Alabama	41.2	31.5	28.5	26.1	19.1	Nebraska	6.5	5.9	5.4	5.1	4.7
Arizona	9.6	9.6	9.5	8.8	7.7	Nevada	12.8	7.4	7.2	6.4	4.9
Arkansas	36.8	29.6	26.9	20.4	16.0	New Hampshire	14.1	13.8	10.6	9.2	7.5
California	6.1	6.0	5.2	3.8	3.4	New Jersey	14.6	13.9	11.6	9.2	7.8
Colorado	10.0	7.3	6.4	5.8	5.3	New Mexico	24.9	16.2	15.9	14.1	11.6
Connecticut	12.8	11.6	10.4	9.0	8.1	New York	19.1	15.5	13.3	10.4	9.0
Delaware	13.1	12.2	10.4	9.1	7.7	North Carolina	22.9	18.2	17.2	14.0	10.9
District of Columbia	10.7	12.8	10.8	8.3	6.4	North Dakota	9.8	7.1	6.9	6.5	6.1
Florida	17.2	13.1	9.9	8.3	6.9	Ohio	10.4	9.5	7.9	6.8	5.7
Georgia	21.7	19.8	21.9	20.2	17.3	Oklahoma	17.1	9.5	9.2	8.1	6.9
Idaho	11.3	8.5	8.4	8.0	7.4	Oregon	10.9	7.6	6.6	5.8	5.0
Illinois	13.4	11.4	9.7	8.3	7.0	Pennsylvania	18.3	15.3	12.6	10.5	8.7
Indiana	12.6	8.8	7.3	6.2	5.2	Rhode Island	16.4	12.0	11.3	9.1	8.2
Iowa	6.1	5.5	5.2	4.8	4.3	South Carolina	21.2	17.9	18.7	17.7	13.7
Kansas	8.3	6.0	6.1	5.4	4.8	South Dakota	7.2	5.3	5.3	5.1	5.0
Kentucky	26.9	21.4	19.0	15.7	12.3	Tennessee	29.1	23.0	19.9	17.2	13.8
Louisiana	37.5	24.6	23.1	17.6	13.5	Texas	14.1	10.9	9.9	8.9	7.2
Maine	14.8	12.2	9.9	8.3	7.2	Utah	13.1	10.5	8.9	9.1	8.0
Maryland	16.7	14.1	10.6	8.8	8.9	Vermont	13.7	11.1	9.4	8.0	6.7
Massachusetts	15.7	14.0	10.7	10.0	8.4	Virginia	24.0	20.0	16.5	13.8	11.4
Michigan	9.7	8.6	7.7	6.3	5.4	Washington	11.5	7.3	7.3	6.5	5.5
Minnesota	9.1	7.4	7.4	6.3	5.6	West Virginia	29.2	18.1	15.6	12.9	9.9
Mississippi	45.0	26.1	27.5	23.1	17.1	Wisconsin	10.9	9.0	7.7	6.9	6.1
Missouri	14.2	10.7	9.8	8.7	7.2	Wyoming	9.1	8.1	7.2	6.3	5.3
Montana	8.4	9.0	9.3	8.8	8.3						
						Total	14.1	11.5	10.4	8.6	7.3

APPENDIX 10—AVERAGE LICENSE FEES FOR 1½-TON, 3½-TON, AND 5-TON TRUCKS¹

Capacity of Truck	1914	1921	1924
1½ tons	\$6.43	\$27.55	\$31.15
3½ tons	8.86	64.05	85.75
5 tons	8.80	90.52	139.39

NUMBER OF STATES CHARGING VARIOUS AVERAGE LICENSE FEES FOR THREE SIZES OF MOTOR TRUCKS, 1914, 1921, AND 1924

Average Fees	1½-ton			3½-ton			5-ton		
	1914	1921	1924	1914	1921	1924	1914	1921	1924
Less than \$10.	33	4	..	29	2	..	29	2	..
\$10-\$19.	12	7	8	12	3	..	11	3	..
\$20-\$29.	1	17	20	4	3	2	4	2	1
\$30-\$39.	..	9	8	1	4	3	2	1	..
\$40-\$49.	..	7	4	..	6	7	..	3	4
\$50-\$59.	..	3	5	..	6	4	..	5	6
\$60-\$69.	..	1	1	..	5	4	..	3	2
\$70-\$79.	..	..	1	..	2	5	..	4	4
\$80-\$89.	..	..	..	..	3	3	..	3	3
\$90-\$99.	..	..	1	..	4	2	..	1	..
\$100-\$109.	..	..	..	..	8	8	..	3	2
\$110-\$119.	..	..	..	..	..	1	..	1	1
\$120-\$129.	..	..	..	..	1	2	..	2	3
\$130-\$139.	..	..	..	..	..	1	..	..	..
\$140-\$149.	..	..	..	..	..	3	..	3	4
\$150-\$159.	..	..	..	..	..	..	..	4	7
\$160-\$169.	..	..	..	..	..	..	..	..	..
\$170-\$179.	..	..	..	..	..	1	..	1	..
\$180-\$189.	..	..	..	..	..	..	..	2	3
\$190-\$199.	..	..	..	..	..	..	..	..	..
\$200-\$209.	..	..	..	..	1	1	..	4	3
\$210-\$219.	..	..	..	..	..	..	..	..	..
\$220-\$229.	..	..	..	..	..	1	..	..	..
\$230-\$239.	..	..	..	..	..	..	..	..	1
\$240-\$249.	..	..	..	..	..	..	..	..	..
\$250-\$259.	..	..	..	..	..	..	..	..	..
\$260-\$269.	..	..	..	..	..	..	..	..	..
\$270-\$279.	..	..	..	..	..	..	..	..	..
\$280-\$289.	..	..	..	..	..	..	..	..	..
\$290-\$299.	..	..	..	..	..	..	..	..	..
\$300-\$309.	..	..	..	..	..	..	1	..	3
\$310-\$319.	..	..	..	..	..	..	..	..	..
\$320-\$329.	..	..	..	..	..	..	..	..	..
\$330-\$339.	..	..	..	..	..	..	..	..	..
\$340-\$349.	..	..	..	..	..	..	..	..	..
\$350-\$359.	..	..	..	..	..	..	..	..	..
\$360-\$369.	..	..	..	..	..	..	..	..	..
\$370-\$379.	..	..	..	..	..	..	..	..	..
\$380-\$389.	..	..	..	..	..	..	..	..	..
\$390-\$399.	..	..	..	..	..	..	..	..	..
\$400-\$409.	..	..	..	..	..	..	..	..	1
Total.	46	48	48	46	48	48	46	48	48

—(From *Public Roads*, Vol. 5, No. 7, September 1924, "Motor Vehicle Fees and Gasoline Taxes" by Henry R. Trumbower, Economist, U. S. Bureau of Public Roads)

APPENDIX 11—LICENSE FEES AND GASOLINE TAXES PER VEHICLE-MILE BASED ON AVERAGE
TRAVEL OF 6,000 MILES, 1923

State	Average License Fee per Vehicle- Mile	Average Gasoline Tax per Vehicle- Mile ¹	Com- bined Taxes per Vehicle- Mile
	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
Alabama	0.203	0.149	0.352
Arizona	.095	.160	.255
Arkansas	.211	.179	.390
California	.160	.088	.198
Colorado	.089	.075	.174
Connecticut	.397	.081	.478
Delaware	.287	.049	.336
District of Columbia	.080	....	.080
Florida	.215	.180	.395
Georgia	.207	.144	.351
Idaho	.244	.106	.350
Illinois	.167	....	.167
Indiana	.105	.083	.188
Iowa	.258	....	.258
Kansas	.152	....	.152
Kentucky	.225	.067	.292
Louisiana	.267	.092	.359
Maine	.255	.044	.299
Maryland	.348	.068	.416
Massachusetts	.242	....	.242
Michigan	.230	....	.230
Minnesota	.272	....	.272
Mississippi	.172	.075	.247
Missouri	.140	....	.140
Montana	.165	.100	.265
Nebraska	.195	....	.195
Nevada	.163	.123	.286
New Hampshire	.439	.046	.485
New Jersey	.296	....	.296
New Mexico	.153	.086	.239
New York	.274	....	.274
North Carolina	.252	.196	.448
North Dakota	.116	.070	.186
Ohio	.151	....	.151
Oklahoma	.175	.083	.208
Oregon	.408	.196	.604
Pennsylvania	.253	.088	.341
Rhode Island	.231	....	.231
South Carolina	.118	.198	.316
South Dakota	.143	.079	.222
Tennessee	.197	.078	.275
Texas	.132	.029	.161
Utah	.120	.113	.233
Vermont	.296	.063	.349
Virginia	.244	.118	.362
Washington	.252	.079	.331
West Virginia	.276	.039	.315
Wisconsin	.181	....	.181
Wyoming	.173	.059	.232
Average	.208	.041	.249

Toll per vehicle-mile on 187 5 miles of turnpike in Maryland and Virginia, 2.7 cents.

¹ A number of the figures in this column are based on collections of gasoline taxes for less than one year. (See *Public Roads*, Vol. 5, No. 2, April, 1924, p. 17.)

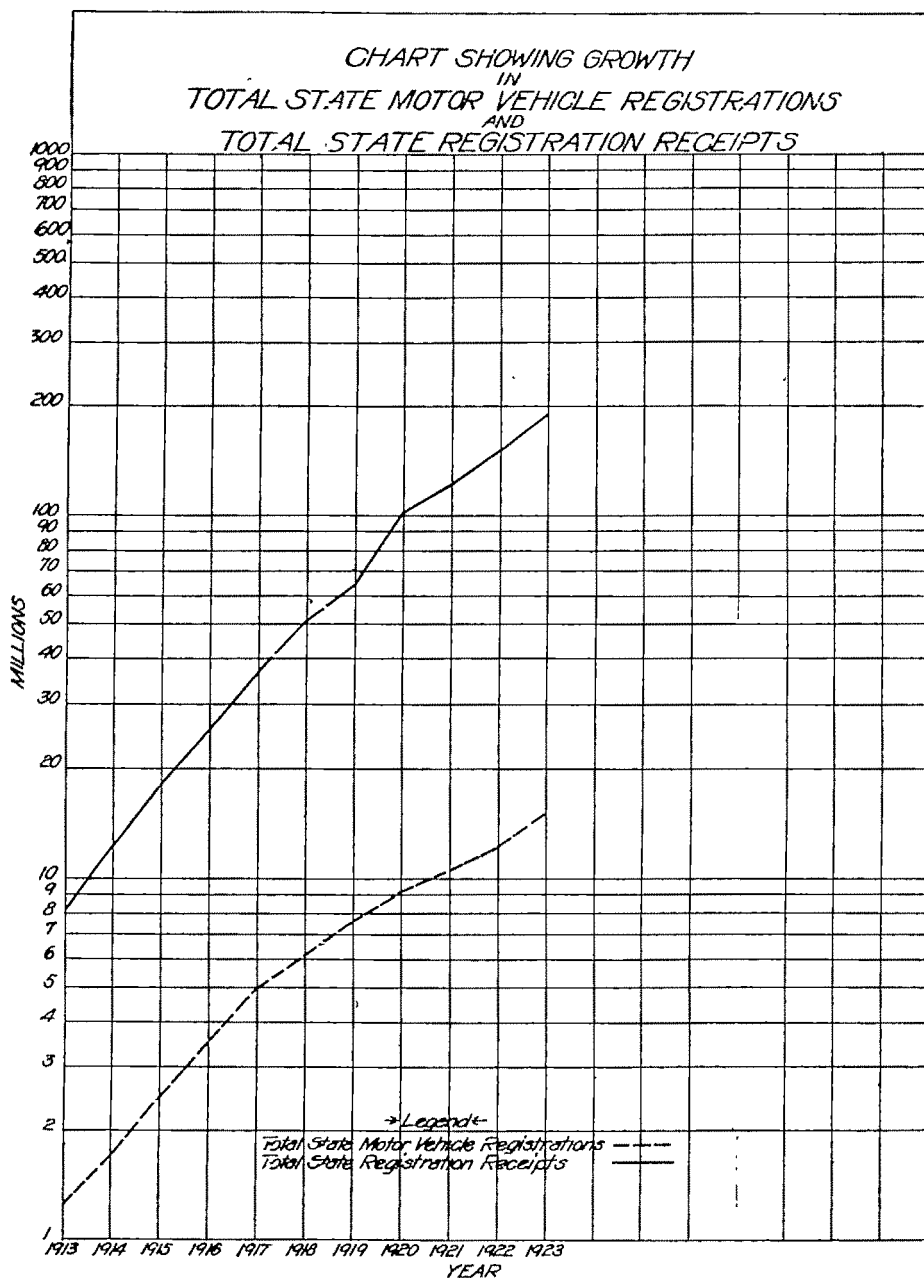
—(From *Public Roads*, Vol. 5, No. 7, September 1924, "Motor Vehicle Fees and Gasoline Taxes" by Henry R. Trumbower, Economist, U. S. Bureau of Public Roads)

APPENDIX 12—GROWTH IN REGISTRATIONS AND REVENUES, IN RELATION TO POPULATION

	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923
Total motor vehicle registrations—U. S. A. . . .	1,258,062	1,711,339	2,445,666	3,512,996	4,983,340	6,146,617	7,566,446	9,231,941	10,463,295	12,238,375	15,092,177
Total population—U. S. A.	96,512,407	97,927,516	99,342,625	100,757,735	102,172,845	103,587,955	105,003,065	106,418,175	107,833,284	109,248,393	110,663,502
Population per registration	76.7	57.2	40.6	28.7	20.5	16.8	13.8	11.5	10.3	8.9	7.3
Revenue	\$8,192,253	\$12,382,031	\$18,245,711	\$25,865,369	\$37,501,233	\$51,477,419	\$64,697,255	\$102,546,212	\$122,478,654	\$152,047,823	\$188,970,992
State registrations							92,860,828	149,207,519	99,967,423	114,793,400	157,707,255
Federal excise taxes							\$157,038,083	\$251,753,731	\$222,446,076	\$266,841,223	\$346,678,247
Total											
Revenue per vehicle registered	\$6.51	\$7.23	\$7.46	\$7.36	\$7.52	\$8.37	\$8.56	\$11.10	\$11.70	\$12.42	\$12.52
State—registration fees							\$.016	\$.958	\$1.134	\$1.391	\$1.707
Revenue per capita:	\$.084	\$.126	\$.183	\$.250	\$.357	\$.496	\$.879	1.402	.927	1.060	1.425
State registrations											
Federal excise taxes							\$1.495	\$3.380	\$2.061	\$2.441	\$3.132
Total											

¹ Gasoline taxes where levied add approximately \$4.60 per car registered for each 1 cent of tax.

² Gasoline taxes totalling \$36,813,940 in 1923 in 35 states add approximately 30 cents per capita on basis of entire U. S. A. population, or 60 cents per capita average in the states where it was levied.



The Financing of Highways

By T. H. MacDONALD

Chief of the Bureau of Public Roads, U. S. Department of Agriculture and H. R. Trumbower,
Economist, U. S. Bureau of Public Roads

PRINCIPLES and concepts pertaining to the public welfare formulate slowly, change more or less constantly and move slowly across the pages of history. There are at any time in more or less common use both principles that will endure and those that are temporary and will be abandoned. Examined in retrospect, the financing of highways through legislation presents a most interesting parallel to the social fabric of the time, with this modification that seems to be common to the Anglo-Saxon methods in governmental affairs: certain concepts persist in the laws long after their real abandonment by the public for the reason they no longer serve. Sound principles of legislation have an unceasing conflict with political expediency. For more than three hundred years the English people have been trying to solve this question of highway finance always facing this conflict, always retaining much legislation that is bad along with the good, and always failing in their laws to reach far enough to overtake the needs and demands of the public. Perhaps this will always be.

Certainly just now the subject demands the most serious attention. The facts are presented as they now exist with sufficient comparison to point present tendencies. Some are good, some most discouraging. It ought to be apparent, if in seventeen years we have added new highways to the extent of more than three times the mileage of highways surfaced in the same period, that as a nation we are "tilting with wind mills" unless we classify the tremendous mileage, 2,941,-

000 miles, in accord with its relative service and select for the better classes of improvement only a limited percentage which serves the greatest number. This is the basic principle of the Federal Highway Act which limits the Federal aid highway system to 7 per cent of the total road mileage. It is the basic principle of many state laws which define and limit the state systems. This concept of nation-wide and state-wide highways lifts the main traffic lines out of the realm of the local authority. They are the responsibility of the state and of the nation, and one of the worst types of financing now existing is the use of local funds for improving these main arteries. Counties and improvement districts have impoverished themselves to improve roads which ought to be improved from state and Federal funds.

THE ROADS THAT SERVE THE TRAFFIC

From another angle, by and large, traffic concentrates on a relatively small percentage of our public highways. Outside the area of the week-end traffic around the large centers of population, this relatively small percentage will carry, when improved with a suitable type of surfacing, the flow of traffic satisfactorily. They answer all purposes. They are the main market roads. They serve the tourist. They are trans-state and trans-nation. They may be called motor highways. Ten per cent of the highways of any fully developed state will include the most important, and 20 per cent will reach about all that will, for a long period, have any claim upon the title

of motor highway. Because tributary roads have a few motor vehicles operated over them from the few farms served to the main road, they are not motor highways. They are not traffic flow lines. These roads serve the land, not the traffic, and this class of highways at this time aggregates probably 80 per cent of the total mileage.

If, as the evidence plainly points, the tendency is to make the road user pay progressively increasing charges in license fees and gas taxes for road improvement, then certainly such revenues ought to be concentrated upon those roads which can be properly classed as motor highways. Further, with the great demands for improved roads of more than 15,000,000 motor vehicles now operating, all of the revenues from the motor vehicle ought to be used for highway purposes. Both of these principles are being violated in numerous states.

Perhaps one other major principle ought to be recorded here. While there have been large additions made annually to the mileage of surfaced roads and other betterments in the way of widening narrow roads, improving alignment, eliminating grade crossings and such, the factor that probably has contributed the most to the satisfactory use of large mileages of highways is the maintenance programs of the state highway departments. Common consent will concur that the greatest loss in the past has come from a failure to maintain. With few exceptions the state highway departments that have been entrusted with the responsibility are cautiously conserving the investment they are making by careful maintenance.

HIGHWAY FUNDS AND THEIR ADMINISTRATION

Yet as is pointed out, about 60 per cent of the total highway expenditures

are still under control of the local organizations, mainly the counties, and it is this expenditure that is drawn largely from property taxes. At a time when great complaint is heard over land taxes, the fact should not be overlooked that so much of these taxes as are used for roads are levied and expended in the main by local boards for local road purposes. This is not a criticism. These roads are to a large extent land service roads and are properly a charge upon the whole community, urban and rural, but there is great need for better administration of these funds.

The proper financing and administration of the vast mileage of secondary roads under local authority is today progressing toward satisfactory solution slowly and uncertainly. An extension of supervision by the trained organizations of the state highway departments would accomplish much progress to better this situation.

THE COUNTRY'S SURFACED ROADS

The Bureau of Public Roads makes an investigation at five-year intervals to obtain complete data relating to the total highway mileage of the several states, the number of miles which are surfaced and the types of surfacing, and expenditures and revenues for highway purposes. The latest figures compiled are for the year 1921. At the end of that year there were 2,941,294 miles of highways in the United States, not including city streets and streets within incorporated municipalities. Of this total mileage 387,760 miles, or 13.2 per cent, were improved with some type of surfacing; 2,553,534 miles, or 86.8 per cent, were known as ordinary earth or dirt roads. During the year 1921, 41,171 miles were added to mileage of surfaced roads, and during 1922 it was estimated that about 35,000 miles were surfaced. This does not mean that the mileage of earth roads was

decreased in each of these respective years by this addition of surfaced road mileage, because in many cases roads which had a gravel surface, for example, were improved by applying a higher type of surface such as macadam or concrete.

In the following table are set forth by divisions of states the total mileages of all types of roads, the number of miles of surfaced roads and the mileages of earth roads and their percentage relationship as reported for January 1, 1922.

The highest percentage of surfaced mileage is found in the East North Central states, where 30.1 per cent of

387,760 miles is composed of the following types:

	MILES	PER CENT
Sand-clay.....	68,339	16.3
Gravel.....	199,899	51.5
Macadam.....	87,609	22.6
Concrete.....	15,611	4.0
Bituminous Concrete..	4,978	.3
Brick.....	3,333	.9
Miscellaneous.....	12,991	3.4
Total.....	387,760	100.0

PROGRESS IN HIGHWAY IMPROVEMENT

Since the advent of the use of the motor vehicle great progress has been

DIVISION	TOTAL MILEAGE OF ALL TYPES	SURFACED MILEAGE		EARTH ROAD MILEAGE	
		Miles	Per Cent of Total	Miles	Per Cent of Total
New England.....	83,295	17,725	21.3	65,570	78.7
Middle Atlantic.....	136,935	38,946	20.8	147,989	79.2
East No. Central...	412,753	124,298	30.1	288,455	69.9
West No. Central.....	759,820	80,223	3.9	729,597	96.1
South Atlantic.....	385,587	61,178	16.8	304,389	83.2
East So. Central.....	242,745	41,478	17.1	201,267	82.9
West So. Central....	416,617	23,986	5.8	392,631	94.2
Mountain.....	306,382	15,539	5.1	290,843	94.9
Pacific.....	167,180	34,387	20.6	132,793	79.4
Total.....	2,941,294	387,760	13.2	2,553,534	86.8

the total highway mileage has been improved with some type of surfacing and only 69.9 per cent of the highways are earth roads. In the West North Central section, on the other hand, the relatively smallest surfaced road mileage is found; only 3.9 per cent of the roads are surfaced and 96.1 per cent are earth roads. In this connection it should be borne in mind that this section of states contains approximately 25 per cent of the country's total highway mileage.

The country's surfaced mileage of

made in highway improvement. In 1904, the first year for which highway data were obtained by the Bureau, the total mileage of our rural roads amounted to 2,151,379 miles, of which only 153,530 miles, or 7.1 per cent, were improved with some form of surfacing. Thus, while 789,915 miles had been added to our total highway system during the 17 years from 1904 to 1922, only 234,230 miles had been added to our surfaced mileage during the same period. In other words, the mileage added to our highways was $3\frac{1}{3}$ times

as great as the mileage added to our surfaced roads. The actual amount of highway improvement which was accomplished during these years, however, is much greater than the above figures would seem to indicate. A large mileage of low-type roads has been replaced with types more suitable to the present traffic requirements. Light and narrow bridges have been replaced with wider and more substantial structures. Old narrow roads have been widened and straightened. In 1904 the highest type of surfacing found on our rural roads was water-bound macadam. At the beginning of 1922 a total of more than 25,000 miles of our rural roads were improved with high-type pavements.

But even when full account is taken of all these improvements and betterments it is still clearly evident that our highway improvements have not kept pace with the increase of the traffic on our highways. In 1904 our highway traffic was almost entirely horse-drawn. Prior to 1904 not more than 40,600 motor cars had been manufactured in the United States. A single factory now produces more cars in a single week. On July 1, 1924, the total motor car registration of the country amounted to 15,552,077 as compared with a registration of 13,002,427 twelve months previous.

MAINTENANCE OF RURAL HIGHWAYS

The construction and maintenance of our rural public roads is carried on by many varied and independent units, such as the states, counties, towns, townships and road districts. The total disbursements during 1921 by all of these governmental units for all highway purposes, including interest and payments on highway bonds, amounted to \$1,036,587,772. This amount spent on our highways in a year was substantially the same amount the rail-

roads of the country were entitled to earn as profits under the Transportation Act according to the Interstate Commerce Commission. Of this total amount paid out for highways \$626,965,373, or 60.5 per cent, was expended for work classed as construction; \$248,593,169, or 24 per cent, for work classed as maintenance; \$36,031,353, or 3.5 per cent, for administration and engineering; \$89,280,946, or 8.6 per cent, for the payment of principal and interest on highway bonds, and \$35,716,931, or 3.4 per cent, for the purchase and repair of machinery, equipment, the purchase of quarries, gravel pits, and for all other items or parts of items not properly chargeable to construction, maintenance or administration.

Of the grand total disbursements of \$1,036,587,772 for 1921 there was expended \$413,241,662 by or under the supervision of the respective state highway departments; \$623,346,110 was paid out by the various local counties, towns, townships and districts without any supervision by the respective state highway departments. These expenditures are set forth in detail in the tabulation on the following page.

It is a noteworthy fact that approximately 60 per cent of the money spent on the rural highways of the country was spent by local communities and upon highway work which was not under the supervision of state highway departments.

The gross total of the funds actually made available for all rural highway purposes during the year 1921 amounted to \$1,149,437,896. Of this total, \$438,109,273, or 38.1 per cent, was secured from the sale of bonds; \$415,680,010, or 36.2 per cent, from general taxes; \$122,626,166, or 10.6 per cent, from motor vehicle fees and gasoline taxes; \$79,333,226, or 6.9 per cent, from Federal aid payments received by the various states; and \$93,689,221, or

LOCAL HIGHWAY EXPENDITURES, WITHOUT STATE SUPERVISION

Construction, roads and bridges	\$316,225,470
Unclassified construction (probably largely maintenance)	18,766,090
Maintenance, roads and bridges	174,066,423
Engineering and administration	17,149,498
All other items	97,138,629

Total	\$623,346,110
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HIGHWAY EXPENDITURES BY OR UNDER SUPERVISION OF
STATE HIGHWAY DEPARTMENTS

Construction, roads and bridges	\$291,978,813
Maintenance, roads and bridges	74,526,746
Engineering and administration	18,881,855
All other items	27,859,248

Total	413,241,662
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Grand total	\$1,036,587,772
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8.2 per cent, from various other sources, the chief of which was from appropriations or allotments from general funds originating from two or more sources. It is estimated that approximately one-half of this unclassified income originally came from general property taxes.

METHODS OF FINANCING THE
HIGHWAYS

In every state except North Dakota a part of the funds expended on roads was obtained from the sale of bonds. Arkansas, West Virginia and Louisiana obtained respectively 70.2 per cent, 69.1 per cent, and 68.1 per cent of their total road income from bonds while, on the other hand, New Hampshire and Connecticut secured only 2.8 per cent and 3 per cent of their total highway revenues from bonds. Certain groups of states relied largely on bonds for their highway funds. Thus, the four states of Arkansas, Louisiana, Oklahoma and Texas, comprising the West South Central group of states, secured 59.3 per cent of their total highway funds from this source. At the other extreme we find the six states, forming the New England group, which received only

12.7 per cent of their total highway funds from the sale of bonds.

At the end of 1921 the total amount of highway bonds outstanding was \$1,222,312,300. Of the whole issue 72 per cent are represented by local bonds, the obligations of counties, townships, and districts; 28 per cent are the obligations of state governments. Twenty-seven of the states have no state highway bonds outstanding. In those states, with the exception of Vermont and North Dakota, the outstanding highway bonds were all issued by local governmental units. The United States Census Bureau reported the total amount of bonds issued for all purposes by states, counties, and all other subdivisions to have been \$8,695,906,000 at the end of 1922. Comparing this with the outstanding highway bonds at the close of 1921 we find that but 14 per cent of the total indebtedness of the states, counties and other political subdivisions was represented by local and state highway bonds.

General property taxes contributed \$415,680,010 to the year's total highway income. As has already been indicated, \$93,689,221 was derived from miscellaneous sources, a large part of which was traceable to taxes although

appropriated from general funds in state treasuries. For our present purposes we may consider both of these items as having been payments made by the general public and may, therefore, be regarded as taxes, although a small portion was derived from other sources which could not be clearly segregated. The sum of these two items, \$509,369,231, or 44.4 per cent of the total highway income for 1921, may be regarded as the direct contribution of the public through taxes towards the cost of highway construction and maintenance and towards the principal and interest payments of the bonds outstanding. The per capita tax burden for highway purposes was for that year \$4.83. The total taxes, fees, etc., in 1921, amounted to \$38.80 for the country as a whole. Therefore, the highway tax burden was about 12 per cent of the total per capita burden.

FEDERAL AID FOR HIGHWAY CONSTRUCTION

Federal aid legislation for highway construction in co-operation with the several states had its beginning in 1916 when an appropriation of \$75,000,000 was made for this purpose by Congress. The law provides that such Federal aid funds be apportioned among the states in the following manner: one-third in the ratio which the area of each state bears to the total area of all the states; one-third in the ratio which the population of each state bears to the total population of all the states, as shown by the latest available Federal census; one-third in the ratio which the mileage of rural delivery routes and star routes in each state bears to the total mileage of rural delivery and star routes in all the states. In approving projects to receive Federal aid under the provisions of the Act, preference is to be given to such projects as will expedite the completion of an adequate and con-

nected system of highways, interstate in character. The amount paid as Federal aid to any state on account of a definite project of highway construction must not exceed 50 per cent of the total estimated cost thereof, except in case of any state containing unappropriated public lands exceeding 5 per cent of the total area of all lands in the state, when the Federal aid payment on such projects shall not exceed 50 per cent of the total estimated cost thereof, plus a percentage of such estimated cost equal to one-half of the percentage which the area of the unappropriated public lands in such state bears to the total area of such state. This provision was written into the law to make it easier for those states to finance their share of highway construction costs in which the Federal Government owned large areas of public lands. The maximum amount which the Federal Government can contribute in ordinary cases is limited to \$15,000 a mile. Before any aid can be obtained the Federal Government's approval must be secured as to the type of road and width of construction of the proposed project. Consideration is given to the type and character which shall be best suited for each locality and to the probable character and extent of the future traffic. One of the most important sections of the Act provides that before any project shall be approved for any state, such state must make provisions for the construction and maintenance of Federal aid highways by or under the supervision of a state highway department. Unified and responsible control is thereby insured.

For the period ending June 30, 1924, the Federal Government expended as aid for highway construction \$353,082,098. While it is not possible to trace an individual dollar's passage through the Federal treasury, it may be pointed out in this connection that the internal

revenue collected as taxes on the sales of motor vehicles and accessories and on passenger cars for hire amounted to a total of \$749,040,569 up to June 30, 1924. The users of motor vehicles, therefore, contributed more than twice the amount that the Federal Government paid out in aid toward highway construction. The Federal aid payments and the Federal motor vehicle taxes are shown by years in the following tabulation:

YEAR ENDED JUNE 30	AMOUNT OF FEDERAL AID AND FOREST FUNDS EXPENDED	INTERNAL REVENUES COLLECTED FROM MOTOR VEHICLES, ETC.
1917..	\$40,279	.....
1918. . .	887,176	\$23,981,268
1919. . .	3,995,102	40,341,990
1920. . .	25,168,794	145,968,034
1921. . .	63,583,861	117,322,741
1922.. . .	93,924,885	106,219,381
1923.. . .	77,173,116	146,183,607
1924.....	83,399,885	160,028,548
Total.. .	\$353,082,098	\$749,040,569

SOURCES OF HIGHWAY FUNDS COMPARED

That there is a marked tendency to collect a larger proportion of highway funds from the owners and users of motor vehicles is noted in analyzing the various sources of these highway funds and comparing them with similar sources in previous years. A survey of highway revenues and expenditures for 1914 showed that, out of a total highway income of \$240,262,784, the collections from motor vehicles amounted to \$12,382,031, or 5.1 per cent of the total. In 1921, seven years later, the motor vehicle owners and operators paid \$118,942,706 in motor vehicle fees and \$3,685,460 in gasoline taxes, a total of \$122,626,166, or 10.6 per cent of the total income for highway purposes. A

similar compilation of the payments made by owners and operators of motor vehicles for licenses and permits in 1923 shows a total contribution on their part of \$188,970,992. In the same year the taxes upon the sale of gasoline levied by 35 states amounted to \$86,813,939. The motor vehicles, accordingly, contributed a total of \$225,784,931 during this last year when complete data were available.

It is estimated that the highway income and expenditures for 1923, based upon information thus far obtained, were substantially the same as for 1921. Construction and maintenance programs proceeded at about the same pace. Upon this assumption, therefore, it appears that in 1923 the contribution of the motor vehicle towards the total highway income was about 19.5 per cent. This shows a very substantial increase in the relation of motor vehicle revenues to the highway income, as compared 1914, when it was only 5.1 per cent. Between 1921 and 1923, it is observed, the ratio almost doubled. This increase in the contribution made by the motor vehicle is accounted for by the increase in the total number of vehicles registered and in the payment per vehicle, which rose from \$11.70 in 1921 to \$15 per vehicle in 1923.

As long as the emphasis in licensing automobiles was placed upon the state's police power a flat charge of a certain amount upon the registration of the car was deemed sufficient. The fee in most cases was nominal and was not regarded as a revenue-producing measure. When, however, the licensing of motor vehicles and the collection of registration fees began to be related to the problem of highway construction and maintenance, the revenue aspect was brought into prominence, and as the rate was advanced, classification systems were introduced which would

take into account both the extent of the damage to the road resulting from the operation of a heavy and high-powered car over the highways and the owner's ability to pay. In 19 states passenger automobiles are licensed and fees charged on the basis of rated horse power; in 7 states the weight of the vehicle determines how much of a fee is collected; in the rest of the states combinations of these two methods are followed or other schemes of classification have been devised which are intended to produce similar results. In making charges for the licensing of motor trucks most of the states base the fees upon capacity and gross weight.

In 1923, of the \$188,613,074 collected by the states as motor vehicle license revenues (\$357,918 collected by the District of Columbia not included) \$153,226,636, or 81 per cent, was used by highways by and under the direction and supervision of state highway departments. In only 13 states were any substantial amounts apportioned among the counties. The 19 per cent which was not used by the state highway departments includes, in addition to the funds turned over to local units, the expenses of registering cars and the issuing of licenses and other administrative expenses of similar character.

At about the time when most of the states had succeeded in abolishing the old turnpikes and toll roads, by purchasing them at agreed prices or through condemnation proceedings, and had declared them "free" highways, a movement started which in essence was an extension of the toll principle to all highways of a state brought about through the enactment of laws providing for a tax upon the sale of gasoline. This year, 1924, there are 35 states and the District of Columbia which are collecting this kind of a tax; these states have a rural road mileage

of 1,954,886 miles comprising 66.5 per cent of the total rural highway mileage of the country. The rates range from 1 cent to 4 cents a gallon; 8 states charge a 1-cent tax; 15 states a 2-cent tax; 2 states a 2½-cent tax; 9 states a 3-cent tax; and 1 state a 4-cent tax. The total gasoline taxes collected in the six months ending June 30, 1924, amounted to \$32,430,410. It is estimated that for the whole year of 1924 close to \$75,000,000 will be derived from this source. The disposition of the gasoline tax differs from that of the motor vehicle license fees. In 1923 only 58.5 per cent of the total gross gasoline tax receipts was applicable to highway work by or under the supervision of state highway departments. There was a greater tendency for the states to share these newly discovered revenues with the counties and to divert them for other purposes than in case of the motor vehicle license fees.

HIGHWAY COSTS

The cost of highway construction may be divided into (a) cost of enduring features and (b) cost of perishable features. When roads are built with accepted standards of grade, alignment, drainage structures, and foundations, the cost of such elements may be charged for enduring features. It is manifestly poor policy to build an expensive surface or a relatively long-lived surface on defective grades with poor alignment, or where the drainage features are short-lived and temporary. Construction should be so adjusted to the service needed that its purpose is accomplished without waste. Highways constructed with borrowed money should be strictly maintained. This is no less true for all improved roads. Maintenance is necessary in order to insure to the community the maximum economic service by the road and also

The Storage of Dead Vehicles on Roadways

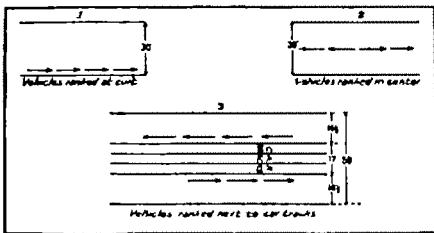
By WILLIAM P. ENO

Chairman of the Board of Directors, Eno Foundation for Highway Traffic Regulations, Inc.

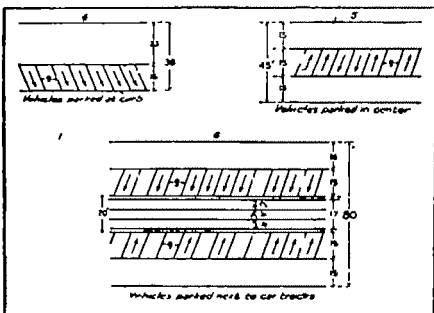
THIS discussion has to do with what is often inaccurately termed "The Parking Question."

Much of the difficulty we are now experiencing through the storage of waiting vehicles on roadways is due to the fact that we have not discriminated between the terms "to rank" and "to park" or between "live" and "dead" vehicle. We must get these points straight in our minds before we can intelligently attempt to bring about better conditions. The terms "to rank" and "to park," while applicable to both live and dead vehicles, relate only to their relative positions to one another and to the curb. The definitions are:

"To Rank—To stand vehicles one behind the other parallel to curb."



"To Park—To stand vehicles parallel to one another at an angle to curb."



The term "to rank" is derived from the term "cab rank," as used for generations in London, where cabs are placed on stands one behind the other in file, and the term "to park" from the practice of placing gun carriages parallel to one another, in which position they are said to be parked. It is therefore clear that the terms "to rank" and "to park" are not synonymous, but that there is a practical and important difference between the two.

In regulating ranking or parking, we must divide vehicles into "live" vehicles and "dead" vehicles. The definitions are—"Live" vehicle one whose driver is present and prepared to move vehicle; "dead" vehicle one whose driver is absent or unable to move vehicle.

When vehicles are ranked, no one of them can move out of the line independently of the others, unless considerable waste space is allowed for between them, whereas when they are parked, being parallel to one another, any one of them can get away without causing any other one to move.

Live vehicles do not give any unreasonable annoyance or cause a serious fire hazard if the Council of National Defense (C. N. D.) Code of General Highway Traffic Regulations¹ is in effect. Dead vehicles, however, constitute not only great inconvenience to the general public and injury to business, but a veritable menace likely to result in uncontrollable conflagrations because fire apparatus cannot reach its destination promptly.

In considering the question of ranking and parking we should take into account the requirements of Article III of the C. N. D. Code of General Highway Traffic Regulations as follows:

¹ See Article III next page.

ARTICLE III. RANKING, PARKING, STOPPING, FOLLOWING, BACKING

Section 1. A live or a dead vehicle may be ranked or parked on any roadway and for any length of time, provided it does not interfere with the rights of others, and subject to the following sections of this Article, unless prohibited from so doing or limited as to time by an official traffic sign or special regulation.

Sec. 2. A dead vehicle shall not be left on a congested roadway during crowded hours except on an indicated public ranking or parking space, subject to local police traffic signs, nor shall it be left in such a position as to prevent other ranked or parked vehicles from moving away nor so as to obstruct moving traffic.

Sec. 3. A vehicle stopped in front of an entrance to a building or transportation station, unless it be expeditiously loading or unloading, shall promptly give place to an arriving vehicle.

Sec. 4. A vehicle shall not be stopped on a crosswalk, nor within an intersection, nor within ten feet of a fire hydrant, except in an emergency, nor with any part of its load extending beyond limit lines.

Sec. 5. A vehicle on a two-way traffic roadway shall stop at the right hand curb only, but not at all if preventing other vehicles from passing in both directions at the same time.

Sec. 6. A vehicle on a one-way traffic roadway may stop at either curb, but not at all if preventing other vehicles from passing in one direction.

Sec. 7. A four-wheeled, horse-drawn vehicle backed up to the curb shall have its horses stand parallel to the curb, faced with the direction of traffic.

Sec. 8. A vehicle shall not follow another too closely for safety, nor fire apparatus, going to a fire, closer than 500 feet.

Sec. 9. A street car shall not be stopped nearer to another street car ahead than five (5) feet.

Sec. 10. A vehicle shall not back to make a turn or in any way so occupy a roadway as to obstruct traffic.

Your attention is called to Sections 1 to 7 inc., which, except Section 2,

apply to both "live" and "dead" vehicles and are sufficient for the reasonable control of "live" vehicles whether ranked or parked. They are, however, not ample for the control of "dead" vehicles and therefore Section 2 has been inserted. This section is probably as definite as we can wisely make a general regulation. Any further control, where necessary, should be brought about through special regulation by the use of such traffic guides as lines on the pavement and properly designed clearly worded signs.

One of the results of Section 2 of Article III will be that vacant lots will be leased to store waiting vehicles and it will become profitable to construct public garages where cars can be left during the day when people are attending to their business and during the evening when they are at the theater. Some of these storage places will undoubtedly be in the congested parts of cities and others a little way out where people will leave their vehicles and proceed to their destination by street car, bus or taxi. This latter will be the case, I believe, in some of our congested cities such as New York where it does not really pay to go downtown in private cars.²

No part of the code has had a more careful study by more people than Article III. The considerations involved are complicated because it is difficult to preserve the rights of all and at the same time refrain from imposing more restrictions on any one than is absolutely necessary. We must, therefore, count upon intelligent police discretion, and the education and respect for fair play of the public for co-operation.

There is no reason why a vehicle

² For further description, history, development, etc., of the C. N. D. Code of General Highway Traffic Regulations see 1924 Municipal Index of *The American City Magazines*, pp. 272 to 275 inc.

should not rank or park anywhere, provided that in so doing it does not unreasonably restrict the liberty of others. See Section 3, which says:

A vehicle stopped in front of an entrance to a building or a transportation station, unless it be expeditiously loading or unloading, shall promptly give place to an arriving vehicle.

This, of course, requires the driver of the waiting vehicle to be ready to pull out immediately on the approach of an arriving vehicle. Such strictness as this implies is absolutely necessary on roadways where the importance of getting to the curb is paramount, as, for instance, on roadways devoted to retail trade, and to a slighter degree on those devoted to residences. Where wholesale business predominates, the necessity of allowing sufficient time to load or unload has to be adequately considered.

In enforcing the provisions of Article III, it should be noted that a vehicle ranked or parked, when not in the way of moving traffic, should not be compelled to enter it again until another vehicle comes to take its place. It is a case where the old adage, "Let sleeping dogs lie," applies. It is clear that while this provision of the code should be enforced strictly when congestion exists, it need not be so strictly insisted upon when congestion does not exist. Of course, every driver, out of common decency, should refrain from leaving his vehicle where it will block access to the door of an occupied building.

GENERAL RANKING AND PARKING SPACES

There are many spaces which can be used for ranking and parking without interfering with the flow of traffic on the roadway. These should be regarded as general ranking or parking spaces. (See Section 1 of Article III.)

Ranking and parking spaces are better marked out by paint limit lines, but whether marked or not marked, they should be free for vehicles to rank or park in. Among such spaces are those alongside parks, vacant lots, public and vacant buildings and buildings where the doors or entrances are not in regular use. Briefly, these spaces may be defined as all those not in front of a regularly used entrance to a building or to a transportation station.

No private signs prohibiting ranking or parking should be allowed, but the Police Department should furnish signs on application of property owners if the reason given is adequate. All signs, like everything else in traffic, should be standardized. The signs for stationary vehicles, designating parking spaces, cab-stands, car and bus stops are known as secondary signs, and should have black letters on a vivid yellow background.

The economy of room for waiting vehicles as well as for moving vehicles on many congested roadways is so important that it is well worth while to define by paint lines every such space that can be used to hold one or more vehicles.

SPECIAL RANKING AND PARKING SPACES

Besides the general ranking and parking spaces already described, there are others, especially adapted to provide for waiting vehicles. Some of these are in the center of streets; some, in very wide streets, are next the car tracks, and others are where streets come together at acute angles. These spaces are often of irregular shapes, filling space not required for lines of moving vehicles. It is of the utmost importance that *all such available spaces in the congested parts of cities be scientifically marked with paint limit lines or be paved with a different*

kind of pavement from the rest of the roadway and furnished with signs with the words, "Public Ranking Space" or "Public Parking Space," as is best adapted to the local possibilities. In these spaces vehicles should usually be allowed to remain unless at certain hours it is necessary to limit their time, when the sign should have on it such additional wording, as, for instance, "80 Minutes from 8 to 7 P. M."

Parking spaces should have stalls not less than $7\frac{1}{2}$ feet or more than $8\frac{1}{2}$ feet wide for vehicles marked by paint lines. Stalls for trucks, sight-seeing vehicles, etc., should be wider.

Vehicles should be parked at an angle to the curb of 90 degrees, 45 degrees, $37\frac{1}{2}$ degrees or 30 degrees, as is best adapted for local conditions. The width of a parking space located in the middle of a street where vehicles are to be parked at an angle of

90°	should be at least	15'
45°	" " " "	15'
$37\frac{1}{2}$ °	" " " "	14'
30°	" " " "	13'

When the parking space is next to the curb, these widths can be reduced one foot each, respectively, as a portion of each vehicle can project over the curb about that much.

Vehicles should never be parked at an angle of 90 degrees to the curb, except in certain locations, when waiting for the termination of the races, theatre, etc., or when loading or unloading merchandise, and in some instances on cab stands. In parking at an angle of 90 degrees to the curb, it is apparent that to get into a stall in the parking space will very often necessitate backing once or even several times.

When vehicles park, unless waiting for the termination of some gathering, they should drive directly into their stalls and back out when ready to

leave. This method will avoid seriously retarding other traffic if the time chosen to back out is when there is a slight let-up in traffic.

If the opposite is done, *i.e.*, passing the stall to be occupied and backing into it, it must always retard the vehicles which are directly behind.

Ranking spaces in the middle of a street should have the side lines six feet apart. If at the curb, one line six feet from the curb should be used.

Some streets are wide enough to park on both sides and allow the necessary room for moving vehicles in the center. Others can have vehicles parked on one side and ranked on the other, provided room is left for moving vehicles.

In one-way traffic streets, if a parking space is to be marked on one or both sides, the stall lines should slant towards the approach of traffic.

CAB, HACK, TRUCK AND SIGHT-SEEING VEHICLE STANDS

Cab, hack, truck and sight-seeing vehicle stands should be marked by signs giving the number of such vehicles each stand is intended for. The vehicles should be *ranked* usually in the middle of the roadway or next the curb, as best suits each locality. There are, however, a considerable number of places where vehicles can be *parked* advantageously either in the middle of the roadway or at the curb. At such places an angle of 90 degrees is ordinarily to be preferred, as it best enables such vehicles to leave the parking space so as to proceed in either direction with equal facility. However, this is not always the case. Sometimes such stands are located in the center of the roadway, where, if *other* vehicles are *ranked* at the curb, there is not sufficient room for entering or leaving the stand to join in with the moving traffic without manœuver-

ing by backing and thus impeding it. In this case an angle of 45, 37½ or 30 degrees should be substituted.

When *parked* at the curb, public vehicles should be backed into the parking space so as to be ready to drive directly out into the traffic when leaving. *This latter method is exactly opposite to what is advised for usual parking purposes.*

The greatest opposition which we shall have to my recommendations will be from owners of cars who have no chauffeurs, who will claim that class legislation is being proposed, whereas it is *they* who desire class legislation because what they want to do is to leave their cars where they will be a nuisance and a menace. This should not be permitted under any circumstances—whether they have chauffeurs or not. It is not a question of chauffeur but one of nuisance and menace.

Surely conveyances such as street cars, busses and taxicabs, which are available to the general public, should have precedence, if necessary, over those for private use only, but we do not permit these to stand indefinitely where they would be a nuisance and a menace.

REMARKS

In many cities, the regulation of dead vehicles is comparatively easy, as, for instance, in Washington, where there are scores of places, many of them in business sections, where in the aggregate thousands of cars could be ranked or parked if the spaces were skilfully laid out and where they would create no menace in case of fire and no hindrance to moving traffic. In New York, however, there are but few such places which can be set aside for waiting vehicles and therefore the problem is more difficult.

The primary objects of roadways are to enable vehicles to go from place to

place and to set down or take up passengers and to load and unload merchandise. Vehicles which are confining their activities to these objects should, of course, be let alone so long as they observe the general traffic regulations, but vehicles which are encumbering the roadways for individual indulgence and convenience should be strictly restrained from doing so.

This paper has been written for technical men, especially for those who are making a study of traffic regulation as a branch of civil engineering. In the not distant future, these problems will be their problems, and they will be employed by the government to work them out. Only by specialists can complicated traffic problems be solved, and the problem of providing for the accommodation of the greatest number of waiting vehicles in a given space on the highways and in specially constructed storage places is one of our greatest civic problems today. The time when such things are left to inexperienced members of police departments or of so-called traffic advisory committees is about over. Already six of our great universities have interested themselves in highway traffic regulation, and soon courses of instruction will be part of the curriculum. Of the fifty billions of dollars invested in our country in transportation, less than twenty billions is in railroads, more than twenty in highway transport and ten in electric roads and waterways. That is to say, in about a quarter of a century highway transport has from nothing already passed the railroads, and is steadily increasing in relative volume and importance. It is needless to say that the best minds must be employed on the regulation of highway traffic, if we expect to prevent the now appalling and needless loss of life and to make highways transport function without

undue delay and with the greatest efficiency.

It is up to all associations interested in traffic regulations to keep their eyes on city engineers and other officials who in their ignorance of traffic requirements are cutting off corners on a rule of thumb radius, permitting car-tracks to be laid out unscientifically, placing traffic towers in the wrong places and allowing fountains and other monuments to be erected where they unduly limit ranking and

parking facilities, and so forth, and so on. It is easier to prevent than it is to remedy.

It may be interesting to know that on account of the urgent necessity for solving this question of ranking and parking, especially by dead vehicles, the Eno Foundation for Highway Traffic Regulation is this year giving prizes at Yale and at George Washington Universities for essays on the subject which will add value in bringing about a satisfactory solution.

Safeguarding Traffic

A Nation's Problem—A Nation's Duty

BY GEORGE M. GRAHAM

Chairman of Traffic Planning & Safety Committee, National Automobile Chamber of Commerce;
Vice-president, Chandler Motor Car Company.

THE safe operation of highway traffic is a national problem. Its importance constantly grows in just the degree that individual transportation increasingly dominates our daily life. Individual transportation, as typified in the motor vehicle, exerts its influence on everything, facile communication, education, living costs, comfort, pleasure and family ties. The infinite benefactions of the automobile will not pay out one hundred per cent unless they can be underwritten by the more efficient safeguarding of life and limb.

This is everybody's duty because it is everybody's problem.

All of us are pedestrians some of the time. Probably half of us are motorists a portion of the time. At one hour we think as pedestrians. At another we think as motorists.

We have the pedestrian's viewpoint when we furiously resent the boisterous horn discharged directly at our ear, or curse the driver who makes us leap or be run down.

We take on the motorist's complex when we arraign the stupidity of the man afoot who does so little to keep out of the way.

CONCERNS ALL OUR PEOPLE

Striving for a solution of this great problem is excellent democracy, since in one form or another it concerns all of our 110,000,000 population.

Well might it be asked—who created this state of menace? Who has put the highway safety in jeopardy? Is it up to the pedestrian? Is it up to the driver? Is it up to the officials who seek to regulate traffic? Is it up to the manufacturer who builds the car and the dealer who sells it?

Actually, not one of these groups need accept responsibility.

The problem is not the creation of an individual or organization. It is the offspring of an impulse which traces back to the beginning of known history:

The demand for swifter and better transportation, subject to the control of the individual operator.

No human aspiration over the centuries has been stronger, no striving more intense. It explains the migration of the pioneer. It defines a Columbus, a Magellan, a Vasco di Gama. It is the answer to a Shackleton or a Peary. It makes clear the Lewis-Clark expedition. It tells why C. P. Huntington and "Jim" Hill carried great railroads across the continent. It furnishes the solution of the recent globe girdling trip by the American aviators.

As long as the earth's people insist on rapid movement from place to place, there will be a transportation problem, and that will be always. Nowhere is this problem so acute as in our own expanding and achieving country. New roads everywhere springing into existence but momentarily relieve congestion. They are speedily filled with new caravans of motorists. In the cities the one-time municipal centers no longer have space to care for commerce and trade.

BUSINESS INVADES THE SUBURBS

Hence, we see the up-springing of great outlying suburban sections, cities in themselves, which have their own stores, banks, etc.

Where lesser communities formerly merged into the great centers of population, now urban congestion is driving them back to a separate existence.

The great need of traffic protection affects alike the crossroad farmer and the tenement dweller. The problem is federal and state, rural and municipal, local and universal.

The almost incredible increase in the number of automobiles and motor trucks has carried us, in little more than two decades, from a total of 13,000 registered automobiles and trucks in 1900 to more than 15,000,000 at the end

of 1923. This is a gain of 111,000 per cent in little more than two decades.

Last year for the first time in the history of the automobile industry the total production of cars and trucks exceeded 4,000,000. It took 7,000,000,000 gallons of gasoline to run the nation's cars last year.

An increasing toll of disasters has constantly been levied against traffic. The development can better be understood by comparing automobile deaths with the total mortality of the United States.

The term "Automobile Deaths" is not an accurate one. As commonly used, it is applied to all fatalities in which an automobile figures, whether the driver be responsible or not. Without conceding the accuracy of the designation I accept it for the purpose of this presentation.

"AUTOMOBILE DEATHS" WERE ONE PER CENT

In 1921, which is the latest year for which complete statistics are available, there died in the United States from all causes somewhat in excess of a million, and a quarter of persons; 74,000 of these met death by accident.

Automobile deaths, 12,500, were one per cent of the grand total, and sixteen per cent of the fatal accidents. It has been pointed out that the total of automobile deaths is growing. This is lamentably true, the figures for 1922 showing 14,000 deaths, and for 1923, 15,750. Yet there should be some encouragement in the fact that the increase in automobile deaths does not keep pace with automobile use. Twelve thousand, five hundred deaths in 1921 meant one for every 837 cars; 15,750 deaths in 1923 would mean one to every 921 cars, an appreciable reduction.

It is necessary to think of our great problem in terms of four main groups, as follows:

First—The pedestrian.

Second—The motorist.

Third—Those who make and sell the cars.

Fourth—Those who are responsible for traffic laws and their administration.

As the rights of each of the four groups are examined it will be found that there is no such thing as any collective blame. Certainly the citizen cannot be blamed in wishing for himself and family the right of safe transit on our streets and highways. It is true that much use of the highways afoot is reckless, but this is small as compared with the percentage that is careful.

AUTOMOBILE A BOON OF PROGRESS

Nor as a class can the motorist be blamed. He is justified in seeking for himself and his family all the benefits of an automobile.

All that is essential to our daily life—food, fuel, raw material, finished product and facile passenger communication—more and more depend upon the automobile.

Along with the victrola, the radio and the moving picture, the automobile has changed the daily life of our people, made the family rather than the individual the unit of pleasure.

Before the days of the automobile, members of a family often took their diversions apart. Now on Sunday the whole family gets into action together. Everybody goes to the big picnic.

Into the little car are crowded father, mother, five children, grandmother, the dog, rugs, newspapers, fishing poles, bird cage, and even mother-in-law, for it is a day of truce when all natural hatreds cease. Nothing could be finer than this day of family outing. It brings the children into the healthful open. It is family companionship while the children are still in the home group. Far be it from us to curtail it.

We should rather extend it as a great helpful influence.

Therefore, the motorist is not to be blamed, excepting that small percentage of evil offenders who drive recklessly or drunkenly.

The automobile manufacturer and the automobile dealer are in no sense at fault as long as they sell high-class products into which has been built every possible safety factor.

Those who administer and direct traffic have, in my judgment, done excellent work, considering the immense ramifications of the problem. Particularly would I pay tribute to the traffic officer who must be at his post in all extremes of weather; must protect the unskilled; must curb the reckless and maintain his temper in the face of infinite causes of provocation.

We cannot segregate the blame to any group. Responsibility is shared by all of that public we seek to protect.

Progress will not permit the elimination of the automobile. We must, therefore, strive to find a way to safeguard its use. The problem is in every respect a new one.

PROGRESS LONG A LAGGARD IN TRANSPORTATION

There are no precedents, for never in the history of the world have so many people owned mediums of individual transportation.

In fact, I should like to direct your attention to an astonishing thought—transportation is perhaps the youngest of all those great sciences which have advanced the public weal.

Go to the authorities and study the history of transportation. You will be amazed to find that until the last one hundred and twenty years there is no advance.

It is hard to realize that anything so vital to human kind as transportation should have been so slow in its develop-

ment. The man of Nazareth, founder of the faith, and George Washington, father of his country, living 1800 years apart, knew only the same mediums of transportation. On land they could be hauled by man or beast. On the water they were dependent upon the straining muscles of the oarsmen or the vagaries of the wind.

This is an almost incredible thought when set against all that happened in the world in the same lapse of years. The culture of Greece, the far-flung power of Rome, the mighty empire of Charlemagne all had their rise, their history and their fall. The Dark Ages and the Middle Ages came and went. The Crusades wrote their dramatic history. In the 15th and 16th centuries came that great outburst of exploration that carried the mariners of Europe all over the world to the discovery of new countries.

Three great revolutions, in England in 1688, in our country in 1776, and in France in 1793, made their contributions to free institutions. Inventors achieved both for good and ill. They discovered gunpowder. They invented printing. The great art works of all times, paintings, statues, buildings, mountain peaks of human genius, all came to the world while transportation remained primitive.

Actually, the history of modern transportation can be written within the last 120 years.

Fulton with the first steamboat in 1806; Stephenson with the first locomotive some score of years later; the electric trolley in the final quarter of the last century; and finally in our day the internal combustion motor vehicle on land, water and in the air, represent more progress than had previously been made in all recorded history.

Therefore, we cannot consult any authorities. We cannot go to any text

book. We must originate our own methods for safeguarding traffic.

RESEARCH EFFORTS AT WORK

Already many agencies have been making sincere efforts. Virtually, all of them are now co-operating. The great Conference on Street and Highway Safety, which originated with Secretary Hoover, and which under his direction is using the machinery of the United States Chamber of Commerce, is a most important movement.

In various researches now in progress are co-operating officials of the Bureau of Public Roads, highway, railroad and utilities commissioners; police chiefs responsible for traffic regulation; the American Automobile Association composed of car users; the National Safety Council; steam and electric railway officials; taxicab operators; insurance organizations; automobile manufacturers and labor and women's organizations.

The conference is proceeding with the utmost harmony. It will map out general policies but still leave various organizations free to pursue those activities which they are best equipped to carry on.

Within the last year I have been in close touch with the work of all these organizations, and I know the outstanding features which are receiving consideration.

The subject is one of infinite length, and without precaution, this presentation might be unduly prolonged.

I shall, therefore, eliminate detail and strive to deal only with fundamentals, bringing to your attention only such issues as seem imperative.

I. THE NEED FOR ACCURATE STATISTICS

First would seem to come the compilation and publication of proper accident statistics. Before we can apply

the major remedies—education, regulation and punishment—it is vital to know why lives are lost.

Up to date there has not been much serious effort in this direction. Only eight states—Connecticut, Indiana, Maryland, Massachusetts, Rhode Island, Vermont, Virginia and Wisconsin—keep an adequate record of any accidents occurring on the street and highway. In these states the motorist is required by law to make a complete report of an accident to the commissioner of highways, the commissioner of motor vehicles, the secretary of state, or the nearest judicial official.

The report develops such facts as: time of accident, where it occurred, whether it was on a curve, road intersection, railroad grade crossing, etc., lighting conditions, state of the car, the age and sex of injured, and a statement of whether the accident resulted from fault of the driver or the pedestrian.

Governor Smith of New York recently deemed the subject sufficiently important to deal with it in a special message. He did not hesitate to say that the state of New York has been far behind the neighboring states of Massachusetts, New Jersey and Connecticut in efforts at prevention.

The governor powerfully argued that New York used 75 per cent of the revenues from automobile licenses, about twenty million dollars per annum, to meet the current expenses of the state, offering virtually nothing to safety development, thereby viewing the subject in terms of dollars without regard to protection of lives and property.

Because of superior methods applied by Massachusetts, said Governor Smith, fatalities in that state were reduced from 532 in 1919 to 500 in 1922, whereas in New York in the same period they grew from 1,361 to 1,725.

The logical outcome of this line of reasoning is that many deaths are pre-

ventable under proper regulation. We believe that this is a most helpful approach. It is our belief that eventually this statistical work will be centered in the United States Census Bureau.

An ideal form for registering these statistics will show automobile accidents, railroad accidents, street car accidents, injuries by other vehicles, as well as all other essential data. Then, as far as possible, effort will be made to draw the lessons and make preventive recommendations.

In a small way our own Traffic Planning and Safety Committee, operating through the National Automobile Chamber of Commerce, has striven to collect statistics with the help of the newspapers.

It is some satisfaction to report that we have found 256 American newspapers, operating in cities of more than 25,000 population, willing to file reports on furnished forms, giving the detail of every death from an accident in which an automobile figures.

These reports are filed with the National Automobile Chamber of Commerce, which has them analyzed and sends out a monthly bulletin showing not only the total of deaths and the causes, but making remedial suggestions.

It is our hope that as this plan continues to function it will make the newspapers of the country a clearing house for an enormous amount of valuable information having to do with safety. Of course we recognize that the Census Bureau can develop figures far more nearly complete than can any independent machinery.

II. COMMUNITY EDUCATION

Having developed the basic accident facts, the subject of education looms up as first in importance.

There are various phases of the edu-

educational work. From the standpoint of general considerations, the first thing should be to reach the great public and arouse an interest in the whole subject. Afterwards, education should be specific to various groups.

There are infinite ways of reaching the great public in an effort to arouse it to the imperative need of care. The methods which have been found effective in reaching these objectives include:

1. Newspaper and magazine publicity.
2. Posters on automobile windshields and in windows.
3. Motion pictures and lantern slides.
4. Radio talks.
5. Safety programs or addresses at meetings of various organizations including those of women.
6. Reaching parents through school children.
7. Special campaigns for a specified period.

Films and slides are a most effective means of presenting the safety story at any meeting. Such slides may also be shown at motion picture theatres before, during or after the regular performance. A list of safety films and slides available may be obtained from the National Safety Council.

Radio talks have been used to a considerable extent for safety instruction purposes. A number of broadcasting stations have placed on their programs safety speakers furnished by a local safety council or committee, automobile club, etc. Some thirty of the larger stations have also used safety talks on timely subjects, vacation hazards, Christmas, etc., furnished them by the National Safety Council and some of them have also used short safety "fillers."

Broadcasting directors are generally

willing to use safety material provided it contains definite information.

III. EDUCATION OF THE CHILD

No phase of traffic disaster is more dreadful than the killing of children, yet it is a most encouraging circumstance that the little ones seem to respond readily to traffic safety education. Everywhere that safety education is made a part of child training there is a decrease in the total of accidents.

It is recognized, of course, that there are limitations of time which operate against unduly adding to the already crowded courses of the public schools, but safety is so important that it is not likely that at any point will there be any real objection to such instruction.

Drills, lectures and moving pictures all will carry their lesson of safety to the child mind.

Playgrounds are needed to give proper release for juvenile energy.

The National Automobile Chamber of Commerce has long been alive to the importance of instructing the child and gives \$6,500 yearly in prizes for the best essays and for safety lessons by teachers and pupils. This contest is conducted by the Highway Education Board, and no less than a half million participated last year.

IV. EDUCATING THE ADULT PEDESTRIAN

We believe that adequately kept statistics will show that in a majority of automobile accidents the fault is with the pedestrian rather than with the automobile driver.

If anyone doubts this, he can prove to his own satisfaction a hundred times a day how frequent is the indifference of the pedestrian to his own self-protection. "Jay-Walking" has been accepted as a term to indicate those who

cross the street anywhere and with utter disregard of the traffic. It is only the alertness and skill of drivers that prevents an infinitely greater number of accidents.

Even where a pedestrian has the right of way, he should be watchful lest a car may pass out of control, as for instance on a slippery street.

If we could but instill the idea of precaution into both the motorist and the pedestrian, there would be almost instantly a most impressive casualty decrease.

V. EDUCATING THE DRIVER

We used to give high credit to a man for the skill to operate a stationary engine. Now millions of men and women, mechanically untrained, are operating fast moving vehicles on congested streets and highways. It is a situation for education.

I believe that 99 per cent of the driving is conscientious, yet we can further improve it with education. Every driver should properly be instructed in the laws of the road and the city street. He should also be trained rigidly in a due regard for the safety of the pedestrian. If the plans of our committee carry, we hope that eventually there will go to every purchaser of a new car a little booklet which will assist him in handling his car properly. This book is now finished and many manufacturers are presenting it to their customers.

The man who actually drives the car can apply the important lesson of courtesy on the road. He can be discriminating in speed. He can use brake, clutch and horn with judgment. He can eliminate reckless chances. He can avoid coasting on the dangerous hill. He can be cautious not to come up quickly at a crossing back of a car. He can be careful not to monopolize the middle of a road. He can avoid passing

while on hills and curves. He can take the maximum of care at grade crossings.

VI. DEVELOPING STANDARDIZED SIGNALS

Everybody concedes that one of the greatest needs is standardization of signals and regulations. It is also admitted that this is most difficult of accomplishment. What is legal in one city is illegal elsewhere. A course of procedure that might mean safety in one state would lead to fatality in another.

This need of uniformity is two-fold, as follows: (1) Signals to be made by the drivers themselves. (2) Signs and signals to direct traffic.

With regard to the first, the writer has very definite views. I believe that all the intricate attempts at driver signal systems are fallacious. I do not think that any set of hand signals can be perfected for general use which will infallibly indicate the driver's purpose to stop, back up or turn to right or left. Under the stress of excitement a driver may readily forget even an apparently simple system. Also, it is not always easy, while man-aging a car, to get the arm and hand exactly in the position to carry certain information to traffic behind.

In my judgment, the only thing to do is to thrust out the left hand as a sign of warning. This will act as a signal to slow up everything behind until the driver's intentions have been ascertained.

The question of the signals which shall guide the driver and regulate traffic involve a far more complicated proposition. Wherever there are standards generally accepted these should be followed. For example, I see no excuse for anything but green lights to permit traffic to go ahead, and red lights to stop it. Railroad practice has established this system throughout

the United States. Therefore, why trifle with it? If we could standardize the regulations for size, weight, speed, equipment, warning signs, etc., we should do a wonderful thing toward safeguarding human life.

VII. PREVENTION OF GRADE CROSSING ACCIDENTS

The grade crossing problem is one of the most difficult we confront.

Nineteen twenty-two saw a total of 1,714 killed at highway grade crossings which they had a right to cross. Trespassers on railroad property are excluded from this compilation.

A distribution of these 1,714 fatalities according to the class of vehicle or other cause is of interest:

Passengers in passenger automobiles	1,079
Passenger in auto buses	262
Motorcyclists or bicyclists	18
Passengers in trolley cars	2
Passengers in other vehicles or machines	119
Pedestrians	199
Miscellaneous	35
Total	1,714

It will be noted that 1,341 of these fatalities at highway grade crossings occurred to persons who were passengers in automobiles or auto buses. Automobile traffic may, therefore, be regarded as a contributing factor in nearly 80 per cent of the total highway grade crossing fatalities to non-trespassers.

In connection with these accidents I have no doubt that many railroads are called upon to pay large damages where they are entirely guiltless of fault.

It is easy to say that grade crossings should be eliminated, but the burden of the expense makes this impossible of quick accomplishment.

The fact that the grade crossing is the railroad's right of way should enforce the obligation of care upon the part of the motorist who uses it

Railroads have been remarkably successful in cutting down accidents from other causes. If they could have the right measure of co-operation from motorists, the grade crossing menace would rapidly dwindle in significance.

Many remedies are constantly proposed. There are those who believe that the motorist should be compelled to make a stop before crossing the tracks, though it is conceded that such a law can be only partially enforced. It is also admitted that such a rule, if observed, would cause congestion and delay. Undoubtedly, there should be a compulsory slowing up to a limit of ten miles per hour within 300 feet of a railroad crossing. This would mean that a vehicle would be under control so that a quick stop could be made if necessary.

There is also general agreement as to the following outstanding points:

(1) The creation of new crossings should be avoided wherever possible.

(2) Highways which cross and re-cross tracks should be relocated.

(3) Adjacent crossings should be consolidated.

(4) Physical conditions at crossings should be favorable to the highway traveler.

(5) The proximity of railroad tracks should be designated by standardized, uniform and unmistakable indication.

(6) All extraneous signs and devices should be excluded from immediate vicinity of grade level crossings.

(7) Railroads should perform their full duty in giving notice of approach of trains.

(8) Crossing flagmen should be invested with authority to arrest persons disregarding stop signals.

VIII. SAFETY THROUGH CITY PLANNING

This subject concerns the engineer. So immense is its scope that it can but

be mentioned here. It has to do with matters physical, the arrangement of streets, the regulation of new buildings, the service of traffic routing.

It involves tremendous expense. It affects that which will be, rather than that which is. It concerns the future. It is the last of the remedies which will help solve the problem.

Therefore, I shall not attempt to discuss any of its infinite ramifications except to say that in the future parking on busy streets will be for limited periods if at all.

Many merchants, who formerly opposed any parking restrictions, are now coming to a changed viewpoint. Nothing is more certain in all the great cities than that there will be a constant tendency to eliminate parking.

America, however, has always met its problems not chiefly by restrictive measures, but through great accomplishments. We may expect in time to have huge parking buildings, more boulevards, decentralized cities, and other engineering developments to meet the needs of the motor age.

IX. SAFETY THROUGH HIGHWAY PLANNING

The committee on Traffic Control and Safety of the American Association of State Highway Officials is taking a far-seeing view of this phase of the work.

Its steady aim is the achievement of highways of 18 foot width, the betterment and replacement of present highways where necessary, the banking and widening of curves, the reconstruction of low capacity narrow bridges, the flattening of boulders and widening of fills, and the extension of the line of sight at dangerous curves.

X. CO-OPERATIVE ORGANIZATIONS

When we leave the strictly official regulation of traffic and enter into the

subject of co-operation on part of independent agencies, new possibilities are developed.

Every community should have either an individual or a commission responsible for its traffic, making studies of the volume and recommending methods for handling. Many such agencies exist at this time. Some of those that are particularly important naturally include the following:

Existing organized motor clubs offer an admirable nucleus for the furtherance of street and highway safety programs, because of their widespread interest in the cause of highway safety, their means and opportunity for obtaining publicity, and their community, state and national influence.

The Safe Drivers' Club is chiefly a medium for getting as many individual motorists as possible to take an active personal interest in public safety. The act of joining the Safe Drivers' Club usually consists of signing a pledge card, receiving a windshield or other emblem and, generally, paying one dollar or other small sum as membership dues. Such dues, where paid, go to the community safety organization and just about pay the expenses of conducting the educational campaign for membership in the club. The Safe Drivers' Club is, therefore, not a means of raising money for the conduct of community safety work, but is chiefly an educational enterprise, self-supporting at the best, for securing the interest and co-operation of motorists.

Highway Safety Committees in a considerable number of cities have been organized under this name or as "Vigilance Committees" to assist the police department, by a variety of methods, in reporting or discouraging violations of the traffic laws and ordinances.

In many cases such organizations as the National Safety Council bear the brunt of the work for traffic safety and

furnish a focusing point for creating and enlightening public opinion to aid officials in their performance of accident prevention duties.

Safety programs, which at various meetings aim at interesting as many as possible of the civic, commercial, fraternal and professional organizations, are very helpful.

Safety Education Week has been another form of popular presentation which has done much to drive home the safety lesson.

The community safety organization is a promotional body having no legal authority or responsibility. It encourages and supports, through the power of public opinion, the police department and other public officials in the proper discharge of their duties. It helps to secure, for these officials, a sympathetic and intelligent public understanding of existing or proposed legislation, traffic control methods, and similar measures for the public welfare. It seeks to harmonize by friendly conference the conflicting views of various groups in the community, which might otherwise prevent or delay needed improvement. It is a convenient and effective medium for carrying on many of the specific educational activities which have been mentioned or for lending support to any such activities which may be carried on by any of the organizations or groups working in or with the safety organization. It encourages all possible safety activity on the part of other organizations and forces in the community.

XI. VIGOROUS PUNISHMENT FOR TRAFFIC OFFENDERS

Most of the considerations that I have here discussed are educational in character, but we know that there are many cases where the remedy does not rest in education.

The statistics of Massachusetts and

Maryland indicate speeding as a major cause of automobile accidents, 158 out of 522 deaths being reported as so caused. Intoxication was the cause in 10 per cent.

Why any mercy should be shown to this type of offender is something that the automobile industry does not understand. The fear of God should be put into every murdering criminal. This cannot be done by fines. The heedless pay these fines and dismiss the matter almost as a joke. Judge Bartlett of Detroit has expressed the opinion that only jail sentences stop the reckless driver.

The automobile industry believes in the rigid enforcement of all traffic regulations. It pledges its full support to every judge who imposes jail sentences for proved offenses, no matter how severe may be the penalty. We believe also in the suspension or revocation of license as a penalty.

In fact, we have reached the point where we are willing to recommend what may be regarded as perhaps the most drastic penalty yet imposed.

We propose that when, after due process of law, a driver of a passenger car is proved responsible for a serious accident or death, that in addition to all penalties now imposed, that he should forfeit possession of his automobile for a period to be determined according to the seriousness of offense. We believe that it is not enough to take the license. Take away the car too. There seems to us something right and fit in making the punishment follow the car.

This punishment could hardly with equity be applied to the hired driver of a taxicab, a motor bus, or a motor truck, since this would impose an unfair financial loss on his innocent employers. Generally speaking, these are not the drivers who figure in accidents. No exception should be made in favor

of any who own vehicles they drive, whether these be passenger vehicles or commercial vehicles.

It is stated by some that such a procedure is confiscation and would be unconstitutional. We do not agree with this viewpoint. It is present legal procedure in all parts of the country to take from a man that which he has used to the detriment of the public. Thus, we find police authorities everywhere confiscating murderous weapons, gambling devices, illicit liquors and conveyances used for the transport of such liquors. We have seen property taken from raided saloons. We have seen homes and business establishments padlocked when they have been used for disorderly purposes. If all this be legal, we believe that our suggestion of impounding cars is legal.

But, if this cannot be done under present laws, we recommend that the various state legislatures enact laws to provide for such impounding. Many a man who would be indifferent to a fine would miss his car most keenly.

The point might also be raised that the care of impounded cars involves a problem and that it might be difficult for police authorities to find adequate storage space, or to assure return of the cars to their owners in first-class condition.

Our plan does not involve any municipal pound. We can do one of two things: either tie up the car in the owner's garage with police seals attached, or impound it in a public garage, at the owner's expense, also with police seals attached. At the end of the penalty period, the police department would remove the seals and permit the car to be returned to use.

QUESTION OF LICENSE BY EXAMINATION

Upon the suggestions that I have already made, opinion in the automo-

bile industry is largely in agreement. These points also represent the views of most of those who have been studying the situation, since the motor vehicle business, in making its recommendations, has consulted with city, state and highway officials for their experience and conclusions.

Other remedies have been proposed that raise sharp differences pro and con. For example, there are strong proponents and opponents of the idea of licensing drivers only upon examination tests. It has been claimed that compelling the driver to prove his efficiency has a marked tendency toward the reduction of accidents, and Massachusetts is quoted as an example. Others believe that the use of the highways in a lawful manner and in a lawful vehicle is a right and not a privilege. There is the further complication that in many cases four or five members of the same family drive a car and obtaining licenses for them all by examination is a process that is more or less resented.

My own feeling is that, while fundamentally the idea is sound, the enormous number of applicants for licenses makes it almost an impossible proposition to give anything but the most perfunctory examination. It would take limitless time and thousands of examiners to attempt to pass on the competency of all those who wish to drive.

AGAINST COMPULSORY LIABILITY INSURANCE

Of late there has also been an increasing tendency to suggest compulsory liability insurance as a panacea. This demand calls for provision by law so that in case of accident there may be available adequate compensation for the sufferer.

Whether such a plan would work out is a question. It does seem fundamentally unfair that the victim of an

accident should have no power of recovery because the offending driver has no assets.

But any attempt to correct this injustice, by making compulsory liability insurance a prerequisite to the issuance of a license, might lead to worse injustice. It is doubtful whether such a law would reduce automobile accidents. Careless drivers might shelter under the protection of this insurance, and be still more reckless.

It would undoubtedly be a step toward socialism and would provide new obstacles against the enjoyment, convenience and profit of individual transportation. It would increase the cost of motoring to many worthy persons who are now careful drivers. In fact, the additional cost would deprive many of the ability to own an automobile.

Particularly would this work injustice against the farmer. Actually, there is little need of protecting the public against the farmer driver, for he is in most cases a very careful motorist.

The automobile industry has not up to this time been able to convince itself of the equity or the efficiency of

compulsory insurance as a safeguard to traffic.

A UNIVERSAL OBLIGATION

I have given here a general summary of the problem and outlined methods to meet it. Each man can render some aid.

We are unworthy to share the benefits of civilization unless we do our utmost to safeguard our people from such perils as its machinery develops unless properly controlled.

Twenty thousand men, women and children will die on street and highway in 1925 unless we effectively intervene.

Protection of the public ways entails a peculiarly democratic obligation.

Onto their surfaces of asphalt, brick, concrete, clay or macadam empty daily the nation's units, greatest and lowliest, proudest and humblest, richest and poorest, strongest and weakest.

Over their crowded routes, whether afoot, whether by mass transportation in the electric trolley or individual transportation in the gasoline automobile, all must pass on the way to home, to toil, to education, to pleasure, to all the myriad activities of life.

We have done ill until this universal transit be freed of danger.

Traffic Violations and the Court

Detroit's Violation Bureau

By SOLON E. ROSE

Detroit Bureau of Governmental Research

IN many urban centers the motorization of traffic is substantially complete. In Detroit and Los Angeles, for example, there are as many automobiles as families and there is an automobile seat for every person. This replacement of locomotion by "motor-motion" means that most of

our citizens are now operators of automobiles (which are potentially dangerous weapons) and as such make a large use of public highways both as traffic channels and storage spaces. It is essential, therefore, that, from both the standpoint of public safety and to secure the impartial and

efficacious use of public highways, a comprehensive code of regulations be taught the public and be strictly enforced.

Public interest in reasonable traffic regulation is reached through wide dissemination of the printed statutes, press articles, lectures, instruction in the schools, special schools for drivers, and the examination of applicants for operators' licenses. Enforcement of these regulations is being carried out by the apprehension of offenders by the police departments, and the trial and punishment of offenders by the criminal courts. The detection and apprehension of offenders is or can be well taken care of by the use of a sufficient number of traffic and motorcycle officers, but the trial and punishment of thousands of petty offenders by means of the elaborate and expensive machinery of the criminal courts has placed a burden on these courts that they are in most cases unable to handle without costly expansion. However, inasmuch as judicial action in the disposition of these cases seldom goes further than the imposition of a nominal fine, the expansion of our courts to handle such appears unwarranted. The problem of an expeditious disposition of traffic law violations is faced by all our urban communities.

CREATION OF "VIOLATION BUREAU"

The penalization of offenders has heretofore been exclusively a matter of court jurisdiction, although about 98 per cent of traffic offenses are of so minor a character as to make this procedure somewhat ridiculous from a practical viewpoint. Recognition of this absurdity, coupled with the emergency of an overburdened court in which hundreds of violators and scores of policemen fill court rooms and halls to overflowing on "Traffic Violators days," has caused Detroit

to create a "Violation Bureau" at Police Headquarters to dispose of most of these cases without court action.

In Detroit in May and June the average number of traffic violation complaints was about 300 per day, with many violations overlooked or disposed of by reprimands because of the practical impossibility of following up a larger number, and the reluctance of police officers to spend an excessive amount of their free time in court. Even with this number, conditions were very unsatisfactory, not only because of the court congestion, but also because a large number of the officers were kept in court away from active duty or on their own free time, and because of the great inconvenience caused the citizens who were kept waiting from three to five hours for their cases to be heard.

On August 1, 1924, a new "Violation Bureau" was established to serve:

- (1) As a clearing house for all traffic violation complaints.
- (2) As a record for all traffic offenders.
- (3) To dispose of all cases where the plea was guilty and judicial action was not indicated as necessary or heavy penalty desirable, and
- (4) To send to court all serious cases and the cases of "repeaters" where the imposition of nominal fines had proved futile.

To carry out this project, a new type of card for reporting traffic violations was put in use. These cards are made out in duplicate, the original being given to the offender or attached to his vehicle, and the copy forwarded to the violation bureau. One side of the violation card is reproduced.

These cards are issued to the officers, and individual receipts taken, so that

Precinct No. Violation
Card No.

DETROIT POLICE DEPARTMENT

Time A. M. Date 192..
P. M.

To

Address at St.
near

Operator's License No. Car License No.

TO THE OFFENDER:

You are directed to report within 24 hours (Sundays and Holidays excepted) at
the Violation Bureau at Police Headquarters, Beaubien and Macomb
Streets. Office Open 8.00 A. M. to 10.00 P. M.

IF YOU FAIL TO SO REPORT A WARRANT MAY BE ISSUED FOR YOUR ARREST AND YOU
WILL BE REQUIRED TO ANSWER TO THIS CHARGE IN COURT.

BE SURE TO BRING THIS CARD AND YOUR DRIVER'S OR OPERATOR'S LICENSE WITH YOU.

PARKING (Impounding)	LIGHTS
..... Overtime	 Both headlights out
..... Improperly	 One headlight out
..... In prohibited zone	 Tail light out
..... In street	 Glaring headlights
..... In alley	HORN
..... Within 15 ft. of fire hydrant	 Blowing horn except for signal
PARKING (Other than impounding)	CUT-OUT
..... Opposite safety zone	 Muffler cut-out open
..... In front of building entrance	LICENSE PLATES
	 Missing
FAILURE TO STOP	 Obscured or dirty
..... At stop street	 Improper plates
..... When leaving alley or driveway	DRIVING LICENSES
..... With street car	 No operator's license
	 Operator's license not on person
DRIVING THROUGH	 No chauffeur's license
..... Occupied safety zone	 Chauffeur license not on person
..... Street to left of street car	
SPEEDING	SIGNALS
..... Miles per hour	 Failed to give proper signal
..... Exceeding half legal rate at street car lines	RECKLESS DRIVING
..... Exceeding half legal rate turning corners	 Endangering pedestrian
	 Car not under control
	 Violating right-of-way

Violation other than above, if any

Place where violation occurred

..... St. At St.
Ave. Near
Patrolman Badge No.

all officers can be held accountable for all cards used.

The reverse side of the card carries the following instructions to offenders:

TO THE OFFENDER:

When you appear at the Violation Bureau—

1. If your record for the past year has been satisfactory, you will be allowed to pay a sum of money or if you prefer, to go to court to stand trial for your violation. If you make the requested payment it will be turned into the general fund of the City in the same way as if it was a fine collected in Court, and there will be no further action taken against you.

2. If you are not guilty of the violation charged or if for any other reason you care to pay the sum required, you must appear in Court for trial and must wait at the Bureau until you are served with a summons to appear in Court.

3. If you, although guilty of the violation with which you are charged, refuse to make the requested payment because you prefer to go to court for trial, the fine imposed by the Court may be more or less than the deposit, or you may be sentenced to the House of Correction or you may be sentenced to both fine and imprisonment, in accordance with the opinion of the Court.

4. For subsequent offences, either (1) a greater deposit will be required, or (2) you must go to court without the option of making a deposit.

5. The amount of the required deposit varies with (1) the type of violation, and (2) the number of violations. The minimum amount is \$1.00 and the maximum \$10.00.

The duplicate copy of the violation record is the same on its face as the original, but the reverse is used as a memorandum by the reporting officer, as follows:

DETROIT POLICE DEPARTMENT
VIOLATION BUREAU
PATROLMAN'S REPORT

To be filled out only in those cases that may go to court

Defendant.. ..	.....
Address.. ..	.....
Owner of Vehicle.....	.....
Address.....	.....
Style of Vehicle and Make. ....	.....
Operator's License No.	Car License No.
Violation.....	.....
Remarks. ....	.....
.....	

WITNESSES

.....	
.....	
.....	
.....	

Do not write here.

Receipt No.....	.....
Summons	.....
Issued:.....	192..
Warrant	.....
Issued	192..

.....
Officer Making Complaint.
.....
Officer in Charge.

The reverse side of the duplicate card is filled out only in cases of serious, unusual, or flagrant violations, for which the offender may be sent to court for trial. When the officer making the complaint has completed his record and turned the card in to his precinct, he is not required to give any further attention to the case, unless notified by the Violation Bureau that he will be required to appear in court. This notification to the officer is made by returning to him the violation card he sent in and the court notice issued by the Violation Bureau.

The card served upon the violator directs him to report to the Violation Bureau. When he appears at the Bureau, he is, except in the more serious instances, permitted to make payment according to a fixed schedule or if he so desires, he may go to court for trial. If the offender prefers to go to court, he is forthwith served with a court notice. In the first month of operation, no one who was given this option of making payment failed to take it.

When the payment is made, a receipt is issued as below:

This receipt is made out in duplicate. One copy is issued to the offender when he makes payment and the other is filed as a check on the money received. The money is forwarded daily to the city treasurer. The accounts are audited monthly.

This system in effect permits the offending citizen to fine himself to serve his own convenience and the convenience of the public departments concerned. It was put into effect after an understanding was reached with all the officials concerned, including the judges of the criminal court and the legal departments of the city and county. It has, as yet, not been sanctioned by the passage of a city ordinance, but this will probably follow in the near future. An informal approval of this scheme was obtained from the City Council prior to its being placed in operation. It is evident that at present these orders of the police are not legal summons and that offenders may ignore them at will. However, such procedure would result in the issuance of a summons personally served. During the introductory period an expected number of these orders

DETROIT POLICE DEPARTMENT

VIOLATION BUREAU

\$.....00

Operator License No..... Date.....192..

Received from

.....Dollars.

Re-Violation Card No.....

Date.....

Violation.....

Officer's Name.....

F. H. CROUL,
Police Commissioner

By.

I hereby forfeit to the City of Detroit the sum of \$.....00 for the violation described hereon in lieu of going to court.

Name.....

Address.....

were ignored. Such cases are now being followed up vigorously by the police. The new system has had the support of the press and has been given full publicity.

RESULTING BENEFITS

The first month's operation of the Violation Bureau showed that the Police Department made 17,034 complaints against motorists during the month as compared to 9,388 in July. The Bureau handled 12,681 cases and collected \$32,909 in the nature of fines. The courts have been relieved almost entirely of the burden of hearing traffic cases and enabled to give more time to criminal cases. In July, 5,630 traffic cases were tried, while in August only 224 were sent to court. Under the old system traffic law violators averaged three and one half hours in court awaiting trial. The average time for settlement of such cases in the Violation Bureau is less than five minutes. Police salaries should go into keeping officers on the job. During July over 300 police officers spent a total of 1,050 hours in court awaiting the hearing of traffic cases, but in August the officers spent only 45 hours in court. This means that busy congested corners had increased police supervision and that motorcycle officers kept closer watch for violators. Everyone concerned has been benefited—the courts, the police, and the violators.

The Police Department has made every effort to play fair with the public and in about 8 per cent of the com-

plaints, where a substantial doubt existed or a warning seemed the only action warranted, the complaints were withdrawn. However, only the chief of the Bureau is empowered to withdraw complaints. Omitting the withdrawn complaints, 98½ per cent of all the rest were settled by payments to the Bureau and 1½ per cent were sent to court for disposition. This ratio is 57:1. The whole number of cases handled would have averaged 550 per day for the court, which would have more than taken up all the time of one judge and his court room staff. Whereas, with the sifting out and disposition of the unimportant cases by the Bureau, only the equivalent of one day's time in a month was consumed by the court.

To summarize the results obtained, the Bureau has:

- (1) Relieved congestion in the traffic division of the criminal court.
- (2) Done away with the holding of large numbers of police and traffic officers in court, waiting to testify, away from active duty.
- (3) Relieved accused drivers of long waits in crowded court rooms, which usually constituted more of a punishment than the penalty imposed by the judge.
- (4) Instituted a more complete and unified record of all traffic offenders, so that "repeaters" can be more heavily punished.

The Automobile and the Police

By ARCH MANDEL

Dayton Research Association

IN so far as the police department is concerned, the automobile has not proven itself an unmixed blessing. While, on one side of the equation, it has added a means of improving the effectiveness of police departments, it has, up to date, added more on the other side of the equation to the difficulty of the already difficult and complex problem of crime prevention. Tradition plays a very strong part in the administration, methods and operation of American police departments and it has been a slow process to bring about the required adjustments necessary to meet the changing conditions resulting from the universal use of the automobile for dishonest as well as honest purposes.

Certain crimes and various phases of disorderly conduct may be considered as being directly preventible by the police. The presence of a protective force will prevent the commission of a burglary or a holdup or minor disturbances against the public peace. To prevent this type of crime or misconduct, policemen are assigned to patrol definite districts or beats and are made responsible for the peace and order in the districts assigned to them. The more frequently a policeman can cover every point on his beat, the more effective is he as a crime prevention force. Inasmuch as the amount of territory a policeman may have under proper surveillance is extremely limited; the foot patrolman is handicapped very seriously in his ability to prevent crime.

As a rule, the patrol beats in the business sections are small, so that the policeman finds it possible to traverse it with sufficient frequency to be of serv-

ice if necessary, but in the residential sections, the patrol beat is too extensive for the policeman to be of any real value. Except for the misguided belief of security that citizens have, the use of a foot patrolman in the residential sections is practically nil.

ADVANTAGES OF AUTOMOBILE PATROLLING

The obvious answer to this problem has been to employ a sufficient number of policemen and to reduce the size of the beats to a workable unit, but for financial reasons cities have been unable to cope with the situation by this method. With the advent of the automobile, however, police departments have been provided a means of making the patrol method a greater force in the prevention of crime. The introduction of automobiles in this service has made it possible to do better work over a larger territory, with the same number of men patrolling. The advantage gained from the use of automobile patrolling is either a reduction in the number of men in the patrol service or, because police departments are usually undermanned, the advantage to be gained is covering the territory now assigned to foot patrolmen more frequently.

The usual method of employing the automobile in patrolling is to assign two policemen to a car, who drive at a rate of speed consistent with ability to observe, in passing, conditions on the beat. When circumstances warrant a closer investigation, the automobile is stopped and one or both of the men proceed to investigate more closely. In this way, all of the advantages of

foot patrolling are obtained, to which is added the advantage of frequent surveillance of every part of the beat. The superintendent of the Detroit police department, in his request for an appropriation for motor equipment for patrol service, stated to the Common Council that two men in an automobile were more effective than six men on foot.

By the use of the automobile in patrolling service, the policeman is given an even chance in coping with the criminal. The latter realized early the unusual advantage of using an automobile in his business and unless a policeman is able to travel as rapidly as the criminal, he stands little chance of apprehending or investigating suspicious characters who operate with motor equipment.

It is not necessary in order to be a preventive force that the policeman be on the spot at the time. It is sufficient if he has the means of arriving quickly and unsuspectedly in any part of his beat. This the automobile makes possible.

Another benefit accruing to the public from the common use of motor equipment by policemen is the emergency aid possible to be rendered with equipment that can be carried in automobiles: A first aid kit for injured persons, lanterns for marking dangerous places which have not been reported, fire extinguishers, heavy firearms, and a score of other implements that the policeman may find useful in his task of coping with criminals and in being a general handy man to the community.

The proverbial criticism against police departments has been that a policeman is never available when he is needed. With the extensive territory a policeman must cover, it is only by a fortunate coincidence that one will pass the door or be on the block when he is wanted. For example, in one city of sixteen square miles, with fifteen

foot patrolmen assigned to as many beats on the night shift, it is evident that some definite means had to be provided to make policemen available within a few minutes after a call. The motor vehicle has solved this problem.

An increasing number of cities are erecting patrol booths in their outlying sections, from which point of vantage two men, as a rule, equipped with a motor vehicle, operate. One remains in the booth at all times to receive telephone calls, while the other patrols the vicinity. Within a few minutes after a call arrives, help can be had by the citizens in the district limits covered by the particular booth. This method has been found very practicable and very efficacious. With the required number of booths strategically located throughout the city, good police protection is secured. Through immediate availability of policemen placed on the main highways near the outskirts of the city, the police are enabled to close all avenues of escape for criminals who "pulled off" a big job in the city or to apprehend those who are escaping from a job in another city.

In conjunction with automobile patrolling and the patrol booths, high-powered machines called "flyers" are maintained at the precinct stations with men on duty ready to respond to calls, particularly of a more serious nature, such as bank holdups, robberies, etc. This service is analagous to the response of fire departments to fire alarms. And the trail of serious crimes committed during the last few years with the aid of the automobile is striking evidence for the need of police departments to be at least as well equipped as the criminals.

PROBLEMS ATTENDANT IN MOTOR'S WAKE

(1) *Holdups.* The motor vehicle has ushered in a new era of crime and

police problems, and apparently, a new type of offender. It is a dull day when the newspapers do not carry accounts of banks held up or payroll robberies in some part of the country. Where formerly criminals did not dare to venture the invasion of the central parts of cities, it is not uncommon now to have these holdups committed in business sections in broad daylight. And the successful escapes from the scene of the crime before the police arrive do not help to diminish this banditry.

When it is realized that in a few minutes a bank may be held up and an escape practically assured, it is surprising that there are not more crimes of this type. From the records, it must be concluded that criminals are not deterred by the possibility of being caught in the act; but, if deterred at all, it is because of fear of capture afterwards. State lines have been eliminated by the automobile. Detection of criminals is becoming more and more a nation-wide task. In a ride of a few hours criminals can come from distant cities or from neighboring states, commit a crime and disappear while the local authorities are gathering the details of the crime. In the city of Detroit a few years ago, at the busiest point in the down-town section, a robbery of a financial establishment was staged at nine o'clock in the morning. The criminal not only escaped with loot, but killed two policemen on the spot and wounded another for life. The streets were full of people, but the marauders disappeared. Fortunately, they were apprehended a year later.

(2) *Theft.* However, the increase in this type of crime is not the only problem added to the policing of our cities. The theft of automobiles, aggregating millions of dollars annually, seems to be a new crime added to our already large category of criminal offenses. Whether those engaged in automobile

stealing would have entered a career of crime it is difficult to say, but it does seem reasonable to assume that the opportunity, presented by the apparent ease with which automobiles can be stolen, has induced many individuals to attempt to gain a livelihood by this method, individuals who otherwise would not have undertaken the commission of more difficult and more hazardous crimes, such as burglary and housebreaking. To cope with this problem, police departments have been obliged to detail special squads and to establish special bureaus for recovering stolen automobiles. This has added to the cost of operating police departments in those cities where funds were available for employing more policemen, but, in other cities, it has meant a reduction in the number of men assigned to the performance of the usual duties.

(3) *Traffic Congestion.* It is unnecessary to describe in detail the traffic problems created by the universal use of the automobile. Our city streets were not planned for storing miles of automobiles, providing, at the same time, facilities for a continuous stream of traffic. The result has been the adoption of elaborate rules for controlling and regulating this undreamt of traffic. To enforce these rules requires policemen, and it has been a case of either detailing men from the routine crime preventive duties to traffic regulation or to increase the personnel of the department. Where the latter measure has not been possible, it has meant the subtraction of men for traffic duty from a force already inadequate for crime prevention. And even in those cities where additional policemen are available, the crime-prevention function suffers because the public, by its failure to regard the expenditures for traffic control as separate from those for the old line duties, denies

sufficient funds to meet the need of a growing city for increased crime prevention facilities.

(4) *Loss of Life and Accidents.* In the hands of irresponsible people, the automobile is a deadly weapon. Upon the police, as a community agent responsible for the protection of life, has fallen the overwhelming task of preventing the almost wanton killing and maiming of men, women and children. The police department of Detroit has created a bureau of accident prevention, employing twenty policemen who do nothing but investigate thousands of accidents occurring in that city annually. These new functions call for reorganization in police departments, both as to methods and type of personnel. To some, it is a question whether regulation of traffic and the promotion of traffic has not become a sufficiently serious problem to be handled by a distinct department separate from the police, headed by men whose time and attention can be devoted to this alone and who will attack the problem scientifically. It is inevitable that

the crime prevention and protection functions of the police department should suffer so long as the money appropriated to police departments will, with increasing amounts from year to year, be devoted to traffic regulation. When from 10 per cent to 20 per cent of the men and money of a police department is devoted to traffic control, it is important that the sums appropriated to police departments be analyzed by or for the public.

Living has been accelerated by the automobile. This acceleration, from the standpoint of police departments, has made old problems more complex and difficult and has created new ones. With time and distance practically removed, police problems have been extended from local to metropolitan responsibility. If police departments hope to meet the new conditions with any degree of success, they must readjust themselves more quickly than has been their habit or inclination in the past and they must realize that traditional methods and organization are ineffective in a rapidly changing society.

Protective Measures for the Automobile and Its Owner

By E. AUSTIN BAUGHMAN

Commissioner of Motor Vehicles of Maryland

"PROTECTION to the automobile owner" means laws and regulations which at times are bound to be thought irksome to the automobile owner.

This thought should always be borne in mind when the subject of automobile laws is being considered. By this method, greater co-operation will be obtained and better laws enacted. Any law, to be effective, must have penalties; it must have "teeth in it," and these teeth cannot but at times

bite down upon some person who would lose his or her protection from criminally and habitually reckless operators, if the teeth were not there as a deterrent. To "draw the teeth" of any law leaves the criminal unafraid to pursue his way undisturbed—to steal cars, to drive while drunk, to run over and maim or kill other persons and then speed away. Thus, automobile regulations must be put under the heading of "criminal laws." This fact makes the matter of automobile regulation the

more difficult because the vast majority of violators of an automobile law are not criminals in the accepted sense of that word. And yet, they must, with what good grace they can muster, bow to the penalties in the law when they innocently or inadvertantly violate its provisions,—this that the law may be made a real instrument for good and not become obsolete through partiality in enforcement.

Motor vehicle control must be grounded upon four essential requirements. Although continued expansion of motor vehicle traffic may require enlargement of regulatory power, experience leads to the belief that these four requirements are basic and essentially permanent.

PROTECTING THE AUTOMOBILE

Proper and effective regulation and control requires that a close check at all times be kept on the individual car, once it has been identified and recorded at some central place and under official supervision of records. This record of the car as it goes into the "used-car" class must be permanent. Ready identification and a maximum of ease, in tracing to its owner any car seen on the highways, must be provided. Before being turned loose on the highways the driver, for the protection of himself and to safeguard others, must undergo some mental test and in addition give practical demonstration of his ability and fitness to drive. Once permitted to operate, the driver at all times must be easy of identification and location.

These ends are best accomplished, I think, in the following manner:

First, there must be a titling law; *second*, the ordinary system of yearly registration and issuance of a numbered metal tag to be displayed on cars; *third*, each chauffeur or operator must submit to mental examination and give practical demonstration of his

or her ability to operate a car; and, *fourth*, every driver should be assigned a numbered permit to drive without which he cannot operate a car.

The title law, although it is mentioned first in chronological order, constitutes the latest addition to the more modern systems in the progressive states of the Union. In addition to its other advantages, it has done much to check automobile thefts. It has made the "auto Jack's" vocation more hazardous and correspondingly less profitable. Under this law, if properly drawn and stringently enforced, no motor vehicle can be bought or sold without there first having been an exchange of a title deed between vendor and vendee and a centrally supervised recording of this deed. This title deed should contain a description of the external characteristics of the car—its type of body, type of wheels, etc.—as well as the original factory-given number of the engine or motor.

Being originally designed to prevent theft, such a law should have the most stringent and severe penalties possible. The engine number, as a permanent method of identification, must be protected from forgery or change. Penalties including jail sentences, in addition to fines, should be provided for the mere having in possession of a motor vehicle whose identifying numbers have changed, been destroyed or obliterated. Forgery in application for a title, misstatement in application or any unofficial alteration of a title must also be guarded against through severe penalty clauses. That owners must be made to protect themselves, penalties must be provided for "having in possession" a car for which no title has been issued.

All titles should be issued by, and a record thereof kept in the office of, a state official, who shall have power to enforce the provisions of the law.

Under this system, as introduced first in Maryland, and subsequently adopted by other states, every motor vehicle can be traced at all times to its original owner. In addition, the current owner's name and address will at all times be a matter of public record.

Properly administered, a set of title records will give the authorities at all times a complete and permanent description and record of the present ownership and approximate location of every motor vehicle in a state.

The title record should be kept independent of the system of yearly registration of all cars and the issuance of numbered identification tags, which should be required to be displayed on the car at all times. These tags, issued for a specified car, identified by its body design and engine number, must not be allowed to be displayed on any other car. They should not be issued except in the name of the person who is the owner of record of that particular car. With the tags should be issued a "registration certificate," which the law should require to be carried in the car at all times, thereby immediately establishing the fact that the tags displayed were not issued for some other car. This system at all times gives to its owner speedy identification of and ease of tracing any car seen on the highways. It assures all motor vehicles being made easy of identification and location, through the name and address of the owner of record, after an accident or traffic violation.

PROTECTING THE OWNER

In such cases as just mentioned, however, it is oftentimes the driver rather than the owner who is wanted by the authorities and the complainant. Therefore, all regulatory statutes should endeavor, first, to keep all persons from behind the steering wheel and away from the gear control of a motor vehicle

until he or she has demonstrated ability to operate a car, with the minimum of danger to others, and, second, has also shown a working knowledge of traffic regulations and "rules of the road."

Accomplishment of this, to the desired end, is best reached, I think, through the issuance, first, of a "beginner's license" or "instruction permit." Under this permit the new driver should be forbidden to operate a car unless a fully licensed driver, of experience, is on the driving seat beside him. This permit should be good only for a limited period, but should be renewable during the time the applicant desires to continue undergoing driving instruction.

After the above prescribed period of instruction in actual operation of a car, the applicant should report to the licensing authority for an examination. First, there should be an oral test to determine what the would-be driver has learned about the law and what his conception of his own and other's rights are on the highways. Passing this test, the applicant should be given immediate examination as to his actual driving ability. Failing in the oral examination, he should be told to study the law and come back at a later date for re-examination.

With an officer of the state on the seat beside him, he should be compelled to actually demonstrate his driving ability. This driving ability should be demonstrated in fairly heavy town traffic and not out on an open and otherwise deserted highway. Only after passing both tests should a license to operate be given.

There should in all cases be a prescribed minimum age for all drivers. This should not be under sixteen years.

Having set a standard that drivers must meet before being allowed to operate, the state should list and index every chauffeur and operator and issue

him a numbered identification card containing his name and address and physical characteristics. The operator should be compelled, under threat of a severe penalty, to carry this card with him at all times while driving and to show it upon demand, following any violation or accident.

These permits, if they are to be used properly, must be subject to suspension or revocation. The listed index of driver's records should at all times be kept up to date. In addition to the entry of suspensions or revocations, there should be kept, through co-operation between the highway patrol officers and the trial magistrates, a

complete record of all fines and other penalties imposed. In this way, each driver's record of conduct, and a determination of second or subsequent offenses is made constantly available.

Over and above principles and requirements in the theory of motor vehicle control, because these are useless and practically unenforcible without them, is a body of uniformed, trained and motor-mounted police highway patrol officers. The psychological effect of such a force in restraining the potential "speed king," in discovering and recovering stolen cars, etc., is beyond estimating in its value.

APPENDIX

THE TITLE LAW IN MARYLAND

In the year 1919, the climax of an epidemic of car stealing having been reached, it became absolutely necessary to afford some additional protection to the motoring public. In order to do this, the popularly known "Title Law" was passed by the Legislature of 1920, becoming effective June 1, 1920.

The law had been in effect only six months when the results became apparent, as evidenced by the following table:

Year	Cars stolen	Recovered	Missing
1917	556	347	208
1918	635	526	109
1919	922	709	213
1920	596	417	179
1921	602	525	77
1922	784	715	69
1923	1,350	1,293	57

From these figures, it is apparent that in 1920 the theft rate was practically cut in half, and that the number in the missing column grows steadily smaller year by year, despite the fact that there has been a 20 per cent increase yearly in the number of cars on

the street since 1920. During the past year there have been an unusually large number of cars stolen, but these have been quickly recovered, only 57 remaining out up to November 1, 1923. Most of these thefts are directly traced to joy parties who take cars for a night's ride and then abandon them on the road, or to the bootlegger or thief who takes them for the trip only.

The Title Law was enacted primarily to prevent the theft of motor vehicles and the disposition of stolen cars in Maryland. That it has been responsible in a large measure for the condition of security now felt and enjoyed in Maryland is doubted by no one.

Not least among the advantages of the Title Law is the legal protection afforded both the buyer and the seller. The law provides that the vendor must give the vendee an assignment of his title, together with a statement of any liens or encumbrances against the motor vehicle. Under this law the buyer is assured of a clear title, while the seller of a motor vehicle under a time sale has the same assurance that the car cannot be sold to anyone else

without a statement of his lien appearing on the assignment. This feature of the law is especially advantageous to every dealer and finance company. This statement will be clearer when the following fact is taken into consideration. Approximately 60 per cent of all cars titled in Maryland are bought on time sales. These statistics were compiled by the writer from cars titled in Maryland and the District of Columbia, and I have no doubt that they are about the same in any section of the country. The title files are consulted daily by dozens of persons for as many different reasons, and every mail brings requests for information of a like nature. Some of these inquires are from people who have been in accidents, and have secured judgments against car owners. Others are from persons and firms holding liens on certain motor vehicles, and still others from trustees and receivers in bankruptcy who are trying to straighten out tangled assets. Credit men and finance companies are tireless in their queries, and the latter have every reason to be. And, finally, the title files are invaluable to the police departments and insurance companies, both of whom are its greatest users.

The Title Law has been advantageous in another respect, and that is from a statistical point of view. From the engine number files one can in a comparatively short time find anything from how many 1912 Cadillacs are still in existence in this state, to how many more Fords were sold than Chevrolets in 1923 or 1922; and from how many six- and seven-ton trucks are still in use in Maryland, to what percentage of cars stolen in 1923 are still missing.

I think the question asked most often of the Filing Department is "Find out what John Doe did with that Lizzie he used to own."

One of the most significant facts to be noted about the Title Law is that after noting the beneficial effects in this state, a number of other states have adopted a title law. In most instances the law is modeled upon the Maryland law and is practically identical with it. The chief exception to the above is the state of Pennsylvania, which has some excellent additions to the Maryland law. At the present time the following states have a title law: Michigan, Indiana, Virginia, Delaware, Missouri, North Carolina, Florida, Pennsylvania and Maryland. Ohio requires that a bill of sale pass between the vendor and vendee. Maryland is particularly well situated in that her four neighbors all require proof of ownership before a motor vehicle can be sold within their limits. The ideal condition will, of course, arrive when every state has adopted a title law, and the auto Jack is driven to abandon his profession for the reason that the market has been taken away. If there were none to buy stolen cars, the stealing would stop almost overnight. As it is, the average car thief is beginning to feel the pinch of the law. The game "isn't what it used to be." The thief in Maryland is confronted with the Title Law every time he tries to dispose of his ill-gotten goods, and should he try to take it out of the state, he is faced with the Federal Act forbidding the interstate transportation of stolen cars.

The proof of the pudding is in the eating. In 1923 1,350 cars were stolen and all but 57 were recovered.

The Automobile and Community Planning

By JOHN IHLDER

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THE automobile found us in our customary frame of mind, resentful of an innovation which interfered with established habits. From the day when the drivers of horses cursed an occasional devil wagon to the present, when crowds of pedestrians, many of them car owners themselves, denounce the delays and hazards at busy crossings, our attitude has been negative. Probably if we had realized back in 1900 just how drastic are the changes which the automobile is forcing upon us we would have organized a crusade against it. For our lack of imagination, instead of being the handicap we usually consider it, is probably one of the chief factors in our progress, it gives us the courage or the indifference of ignorance.

But we have now reached a point where we can no longer progress backwards, seeking means of keeping things as nearly as possible as they were in the days of our fathers. Suppression has become the dream of a fanatic. We find it difficult to remember even back to the time when it was not good form to go to church in an automobile—the very thought suggests all manner of irrelevancies—and when our feelings were outraged by the sight of an automobile at a funeral. And now regulation is proving a broken reed. So we have got to turn about and face a future in which adequate provision will be made for automobiles. This involves a revision of our practice in city building.

DREAMS IN CITY BUILDING AND RESULTS

For centuries our cities have been closely built. An occasional Utopian

dreamed of green and spacious cities, an even more occasional one sought to create them. William Penn had a vision of city dwellings set among green gardens and orchards. Yet before the Liberty Bell rang out its message his city had become red with its solid rows of brick houses. Washington and L'Enfant had the vision when they planned the Federal City and sought to safeguard it by making wide, tree-lined avenues. Today, behind the building lines of private property the Federal City is almost as overcrowded with buildings as is Philadelphia, and proposals to cut down street trees and widen roadways are constantly being advanced.

This tendency to over-build has its root in the human desires for a minimum of effort, for conveniences, for companionship. When Benjamin Franklin first walked into Philadelphia, every step counted. Even in his later days when he could drive, distance was a matter to take into serious account. But the dream persisted. The mass of men had caught the vision of the Utopians and desired more spacious cities. Because of that dream they welcomed rapid transit—horse cars, elevated railroads, trolleys, subways—believing that each of these would make the dream come true. On the strength of the dream they made a radical change in their manner of life. More and more those who could afford it deserted the dwelling above the store or beside the printing office and set up their homes at a distance made accessible by the new means of transit. So our cities spread out.

But each of these means of transit

had its counter effect. As it made the suburbs more accessible from the center of town, so it made the center of town more accessible from suburbs and what had once been distant communities. Consequently more and more people came in to the center to do their shopping, to attend the theaters, to consult their lawyers. And to serve these buyers, patrons, clients, more people were employed in the center of town, people whose hours of work or scale of pay made it inconvenient for them to live at a distance from their places of employment. So we had, as on the lower East Side of New York, constantly more numerous, more rapid, more expensive and more *crowded* means of transit provided in order that the workers of Manhattan might live in the green fields of the Bronx and Flatbush—fields and green when the means of transit were first provided, but quite different now—while at the same time the population of the thronging East Side increased steadily and rapidly. The dream did not come true.

Then city planning in its modern phase began. It had run true to form in its development. It looked backward for its inspiration. It saw Old World civic centers that put our haphazard locating of public buildings to shame. It saw broad boulevards which added to the dignity of cities. So we started out to beautify. We again began to dream and in some places this dream is coming true. Cleveland is about to realize its dream after some two decades of effort and fighting. Denver has realized its dream. So has Des Moines. In other cities there is progress and promise.

With achievement our dream became more magnificent. From civic centers and a few great boulevards we advanced to visions of park systems with connecting parkways. We drew plans which included not only the whole city,

but much of the surrounding country. And again some of our dreams are coming true. Chicago, in the generation since the World's Fair, has educated its electorate to support the magnificent city plan that is now gradually taking form. Cleveland and other progressive cities are expanding their vision and giving it form.

INCREASING CONGESTION AND EFFORTS TO AVERT

But so far we followed traditional lines. Except where parks or water or steep hills interfered, our cities grew solidly, the more open suburban developments swallowed by advancing rows of buildings. And behind these rows came skyscrapers, most numerous in the center of town but sporadically shooting up in other sections.

It was the skyscrapers that finally aroused us and forced us to realize that ancient and medieval and even modern Old World examples, though supplemented by rapid transit, do not give us all we need, that we must do some thinking for ourselves. Old time habits of concentrating nearly all the business life of the community were producing conditions that mean constant loss. High buildings crowded closely together darken each other's windows, cut off each other's air, turn streets into sunless canyons inadequate to carry the traffic demanded by the abutting population. Rapid transit instead of solving the problem has intensified it. Now comes the automobile.

The first obvious effects of the automobile's arrival are in our streets. These streets are crowded to a degree of which their dedicators could not conceive. Their death and casualty lists exceed those of battle fields. But—much more important from the point of view of securing action—their inadequacy hampers us in our daily life. We are continually annoyed and handi-

capped by the steady procession of cars that holds us chafing on the curb, or we are prevented from leaving our car where we wish to alight because someone else has already parked there. Our first and natural impulse is to widen the streets. Every day in every city there is discussion of the pros and cons of street widening, either by setting back the abutting buildings, or, as a less expensive compromise, narrowing the sidewalks and so securing more space for roadway.

Evidently such remedies as these, taken up piece-meal, are mere temporary palliatives. Any practicable increase of street or road width is immediately filled with more automobiles and the *status quo ante* is restored. So we have reluctantly begun to realize that we must be more thoroughgoing in our search for a remedy, must even examine anew some of our most firmly established practices in city building. This brings us face to face with what seems to be the fact, that the automobile differs from our former methods of rapid transit in that it demands a good deal of space for itself. Instead of enabling us to crowd more people into a given area, it is forcing us to diminish the density of population. The alternatives seem to be, either fewer people per square foot or fewer automobiles. Assuming what again appears to be the fact, that we shall elect to have *more* automobiles, the problem is squarely before us.

Following our natural bent as an ingenious people who delight in complicated and expensive contrivances for getting things that nature is ready to give us for nothing—such as light and air which we first build out and then force in—supplemented by our tendency to the spectacular, some of our cities are proposing to double-deck their streets or to dig automobile subways. Of course the recent experience

of Pittsburgh with its suffocating tunnel is not to be taken as a warning against such projects if they are really necessary. This merely demonstrated that there are technical problems still to be solved, problems relating to the automobile as well as to the tunnel; for the automobile should not give off deadly gasses whether it is in a tunnel or on the open street. The real argument against these proposals is that when they have been carried to triumphant completion, we shall be in the same situation that we are now, with an added tax burden.

A dim realization of the futility of such proposals is making us begin to ask some questions. For example, what is the most efficient width of roadway in terms of number of traffic lanes? Most of us, accustomed to rather narrow streets packed to capacity, now believe that widening will give relief and that "adequate" widening will give "adequate" relief. But some who have lived beside very wide streets with very wide roadways know from experience that they are not only very expensive, increasingly hazardous to pedestrians—for whom isles of safety must be made, so narrowing the effective roadway by a series of bottle-necks—increasingly difficult to police for traffic regulation; but that they are also comparatively inefficient for traffic flow because they tempt drivers to pursue a devious and traffic checking course. If it were not for considerations such as these we might, despite its cost, widen our streets until by the consequent diminution of building sites we had achieved that which we must finally achieve, though it is to be hoped by less costly means, a proper ratio between the carrying capacity of the street and the traffic needs of the people who occupy abutting buildings.

But this method of winning through attrition is too costly. Before the war

could be fought to a conclusion on this basis it is probable that many battle-grounds near the centers of our cities would be deserted by a large part of their population who would move to other and better planned areas. Essentially similar to the proposal for widening streets and thereby diminishing abutting building sites, is the proposal to cut new streets through built-up areas. The principal effect is the same, more street area, less building area. But again this is so expensive that there seems little likelihood of its being carried through on an adequate scale. Its advantage is that instead of making roadways inefficiently wide, it can make them of the proper width.

So we incline to turn to zoning as offering the most promising way out of our dilemma. If a given bulk of building of a given character—industrial plant, retail store, theater, apartment house, one-family dwelling—originates a given amount of traffic of given character—heavy trucks, delivery cars, street cars and busses, taxis, private passenger cars, pedestrians—on the abutting street, we have a basis for computing the ratio which should be established between building bulk and street width or roadway width. If a given roadway width is most efficient for traffic flow we have another factor which can be taken into account. Then we can decide whether to widen the street, to open a new street or to regulate the character and the bulk of abutting buildings. The last seems likely to prove the least expensive and the most effective.

But this, of course, takes account only of the first obvious effect of the automobile's arrival. The picture we have had before our mind's eye so far has been a busy business district with nearly continuous lines of moving cars. Except for those of us who live or work in the centers of a very few of the larg-

est cities this picture is supplemented by one of even more continuous rows of parked automobiles. In the very few exceptional cities the parked car has almost disappeared downtown where the streets wear a comparatively deserted look to the visitor from a bustling town up state or out west. The revulsion against much too much has thrown them all out, with what effect upon the business of the downtown area is only just beginning to be indicated by stories of firms which have moved to sites where automobile customers can still get at them. This moving of business firms because of traffic congestion is one we must study with some care. Because certain chain stores were located on corners where traffic counts showed the greatest number of pedestrians passing, many of us jumped to the conclusion that these were the most valuable locations for business, or at any rate for retail business. Now because certain stores are moving from the center of town many of us are getting ready to jump to the conclusion that all businesses depend on an automobile trade. This jumping habit saves mental effort, but it does not lead to good city planning.

THE PARKED CAR

The parked car, however, again raises the question of space and of a ratio. First, shall parking space be provided by the city, (a) on its streets, (b) on other public property, and, if so, shall it be provided free or for a fee? Present practice is to provide it free and on the street until the situation becomes intolerable, then to seek other public spaces and perhaps to charge a fee. But except where streets are very wide or where considerable unbuilt-upon areas remain within easy reach of the city center, these expedients promise no adequate relief. New space in-

vites more cars. So we return to the ratio. A given bulk of building of a given character draws to it cars the number and character of which can be fairly definitely determined. Shall the city provide parking space for these cars or shall the building itself make such provision? Shall we widen the street and so diminish the building site, or shall we provide on the building site storage space adequate to meet the needs of its occupants? Indications are that the latter will prove our ultimate policy and that in those sections of the city where populous and expensive buildings cannot be remodeled, either near-by accommodations will be found for the cars of tenants or those sections will find themselves in a losing competition with sections more fortunately situated. In either case density of population will be diminished for the car will displace a human, and the capacity of streets to carry traffic, of private land to shelter both cars and their owners, will tend to set a limit upon land occupancy.

So in new areas, more slowly in old areas as existing buildings are displaced by modern structures, we shall tend to establish an equilibrium between building and street so far as regular occupants of the building are concerned. But additional to the regular occupants are many casuals who visit the building or the district only occasionally. Experience should show how many of these may be expected in an area of a given character. Accuracy of estimate increases with the size of the unit. We can forecast fairly definitely the death rate of a city, but we cannot foretell the death rate among six specified individuals. The casuals visiting a certain office building or retail store may vary considerably from year to year with changes of tenancy, but the casuals visiting a number of office buildings or patronizing a number of stores are more

likely to remain nearly constant. It will be a business asset to the district if parking space is provided for them, and such provision may be considered a proper public function, because it affects the general well-being instead of redounding to the continued profit of easily ascertained individuals. Whether this public parking space should be on the street—provided it does not interfere with traffic flow—or on less expensive locations is a question that each community must answer for itself. Were it not that accessible locations off the street are likely to be built up unless secured immediately, the question might be left until moving traffic pushes the parked car off the street. Because of that likelihood the city planner must indicate public parking spaces now.

WHAT IS HAPPENING TO OUR STREETS

While the downtown or business areas we have been discussing constitute the most urgent part of the problem, it is not the only one that has engaged our attention. Almost equally interesting is the arterial highway by which the working population of the city centers speeds to its homes, or along which moves the traffic between separate business districts. These arterial highways are already in existence. Some of them were created for their arterial purpose in accordance with old time city plans, some are merely streets differing from others only in that they afford a more nearly direct through route than do neighboring streets. For them a new definition of an old word has been evolved. They are styled boulevards and traffic on them has right-of-way over traffic on cross streets. Had the city planners and city builders of a decade or more ago clearly foreseen the time when their arteries would be dedicated to automobiles at express speed they might

have saved us some expense by avoiding grade crossings. For the elimination of grade crossings, not yet complete along the railway lines, will before long appear as an item of importance in street and highway building.

Another change made by the automobile in once accepted city plans is that a considerable proportion of these through routes or arteries avoid the city center, diverting traffic away from, not toward the business streets. Unless they are successful in this the calculations of those who are figuring ratios between bulk and character of building and street width will be complicated by the necessity of making provision for through traffic which has no purpose in invading the downtown area. We still get an occasional traffic report which rejoices in a showing that prohibition of downtown parking has permitted through traffic to move more smoothly. The parked car had a purpose where it was, the through car came that way to everyone's annoyance merely because no equally good alternative route had been provided.

Away from the center or the centers, branching off from the arteries, are the neighborhood roads, leading to the homes of the community. Here again we face the questions of space and of ratio. One of our newest dreams in city building, made more practicable by the distance-shortening automobile, is that our communities shall no longer be expanding solid masses of brick and stone and paving material. In order to make our vision clearer we have begun to talk planning, not in terms of a city but in terms of a metropolitan area. In that area we picture a considerable number of communities, each more or less self-sufficient, grouped about a metropolitan center which was the old time city. These communities are separated from the center and from each other by broad

belts of open land, not parks merely but farms, orchards, truck gardens, woods. With well-paved arterial highways, or perhaps even narrow strips of built-up land crossing them, as old London Bridge with its flanking rows of shops crossed the River Thames, these open spaces mean to the automobilist only five minutes more in the open air. But that is still largely of the future; for while industries and commerce are now establishing the satellite communities we have not yet found a means of preventing them and the parent city from constantly extending their edges over the open area between until they merge as have those of Philadelphia with Kensington, Nicetown, Tacony. So, home neighborhoods for the majority of large-city dwellers still mean rows of houses or apartment buildings connected with their work places by other rows of buildings. In such neighborhoods the ratio must be applied. Especially in apartment house districts has it become necessary to decide for or against street widening and to seek storage space similar to that provided downtown.

CLASSIFYING TRAFFIC

To the dweller in these crowded home neighborhoods has become increasingly important the question of segregation or classification of traffic. It is bad enough to have the curb before his house constantly occupied by the cars of strangers, but it is even worse to have his peace disturbed, his house shaken, by heavy lumbering trucks and to have his special assessments increased by bills for repaving the streets those trucks have broken up. Zoning classifies buildings by use, creates districts of distinctive character. City or community planning is called upon to supplement this by providing thoroughfares of like distinction. To build all streets strong

enough to carry heavy trucks is extravagance. To pave and repave streets ruined by uses for which they were not designed is folly. To classify traffic and provide for the needs of each class is an economy upon which we are about to enter.

And this again will make for spaciousness in our cities. The cost of a house lot is not so much in the land as in the improvements. A light roadway, the medium priced roadway for which the engineers are now seeking, reduces the cost of the lot. Zoning, which not only determines for a long period the character of a neighborhood but sets a fairly definite limit to its population by determining the height and percentage of lot occupancy of its buildings, makes possible other economies. The size of sewers and water mains as well as the type of paving may be decided upon with some assurance. So space will not mean as it has, an undue burden of cost necessitated by an unprophesiable future.

The speed and flexibility of the automobile—for its owner is not bound to

given routes or to a time schedule—makes possible not only greater spaciousness but better planning of new home neighborhoods. The great arterial highways which lead from center to center, the rapid transit lines gradually converted from local to through express routes with lower peaks and higher valleys in their daily schedules, will become boundaries far within which will be placed the schools and recreation places. Children will no longer cross lines of heavy traffic as part of their routine.

The human desires for a minimum of effort, for conveniences, for companionship, are as strong and compelling today as they were in Franklin's day, but the automobile apparently has put them within our reach without our crowding. It is doing more, it is compelling us to cease crowding if we would take full advantage of what it offers. Apparently its arrival will introduce a new era in community planning, or to speak more accurately since we have long *planned* spacious communities, a new era in community building.

Traffic-Transportation Planning and Metropolitan Development

The Need of an Adequate Program

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IT seems especially appropriate that, in so intensive a study of motor development, THE ANNALS should record some of the basic, outstanding facts and trends of this development and their effect on both present and future city life. The following analysis purposely sketches in broad perspective some of the major problems and practical steps to their "solution," though no permanent solution can ever

actually be attained in an era of such unexampled advancement—only progress toward greater perfection.

The greatest present need seems to be a properly balanced and scientific city program, with courage and vision to carry it out in practicable stages. At the outset of this discussion, in order that its scope may be fully apparent, the following suggests such a "platform" or plan of procedure:

WHAT AN ADEQUATE TRAFFIC-TRANSPORTATION PROGRAM SHOULD COVER

1. Plan a city double the present size, without stopping to quarrel when. It will come all too soon.
2. Comprehensive traffic and transport survey to establish the basic facts and conditions as to all traffic movement, growth, facilities, future needs and financing resources.
3. Schedule a definite development program in logical stages:
For the present—minimum cost and quickest results.
For the near future—at moderate cost.
For ultimate development—as can be foreseen.
4. Plan and budget a five-year reconditioning program for streets to develop, as quickly as possible, essential arteries and bypass streets to the roadway width needed for anticipated traffic.
5. Efficient traffic organization and control system, based upon the facts of the survey, including commercial vehicles, trucking, routing and delivery, and a scientific signal control system.
6. System of transit routing and operation best suited to traffic and civic needs, insuring maximum relief from street obstructions and delays, increased speed of service, and adaptation of motor-bus operation as justified.
7. Interurban passenger and freight system with city entrances, terminals and distributing facilities adequate to the needs of the community, whether by rail, or motor or both.
8. Railroad (and port) terminal system best suited to special classes of traffic and service, and most economical of valuable areas, streets and

air-rights of the congested districts and of cross-town trucking in passenger streets—including belt-lines, motorized terminals, clearing, store-door delivery, rail-water interchange, and passenger commuter traffic.

9. Best relation of these elements to the whole city plan and general public welfare, in due proportion to local need.
10. Financial plan including probabilities of funds and revenues, fair distribution of cost and allocation of benefits.
11. Entrust this transportation plan to technical leadership or to an experienced commission, with working funds adequate to the responsibility of the task.
12. Organize a competent, civilian body for the constructive criticism and powerful support which such a body can give in upholding the public authorities in an adequate program of public works, and in insuring the intelligent consideration of all business interests, as well as the general public, to which the plan must be "sold," by various educational means.

City building appears to be a "social complex" of engineering, finance, politics, traditions and social habits. In ancient times, autocratic methods produced some remarkable results, but the restraints of Democracy today deserve equally serious inspection. City budgets, like national ones, are growing rapidly; in the case of New York, as the cube (third power) of the population.¹ The basic land value, measuring the city's purchasing power for public works, is increasing only as the 1.5 to 2.0 power of the population. How shall we ever catch up except by boosting the tax rate? Obviously,

¹ In 1922, 261 cities spent one and one-half billions, not including utilities; for highways about 9 per cent of this.

benefited population, or property, or private capital must absorb the shortage.

per acre, or 8,860 per square mile. (See Table II). Compare this with Chicago's *maximum* of 160,000 and

TABLE I—POPULATION AND MOTOR REGISTRATION

U. S. A.	1890	1900	1910	1920	NOTES		
Urban population (million)	22 8	30 4	42 2	54 8	Cities over 2,500 Towns and farms		
Rural population	40 6	45 6	49 8	51 4			
Total	62 9	76 0	92 0	105 7			
Per cent urban	35.4%	40 0	45 8	51.4	Majority in cities		
Per cent rural	64 6%	60 0	54 2	48 6			
Cities million class (million)	8 7	6 4	8 5	10 1	Recession Advancing rapidly		
One-half million class	0 3	1 6	3 0	6 2			
Ratio	22:1	4:1	2 8:1	16:1			
Number cities	4	6	8	12			
					ESTIMATED		
					1923	1930	1940
Motor Regis. (million) . . . . .	. .	....	0 5	9 0	15.1	24 6*	30 0
Families (million)	12 8	16 2	20 4	24 4	25 6	28 0	31 0
Per family	. .	...	43 5	2 4	1 7	....	1 0*
Persons per family, ...	4 9	4.7	4 5	4 3			

* Estimate based on probable usage per family, 1940 equal to present California usage (already exceeds one motor per family).

THE DRIFT TO THE CITIES

Since 1900, about 24 million people have added to our city population. There will be about 25 million more by 1940—75 million total. The majority of our people now live in the cities and towns, and the curve is rising, while that of rural population is flattening out perceptibly. (See Table I). This drift to the cities is most significant; also the fact that cities of the million class showed last decade a distinct recession in growth rate, while the near-great cities of the half million class are growing with great rapidity. The smaller groups have not yet caught the fever of greatness. Prepare!

Population density is an important index. In 32 metropolitan centers (over 200,000) it increased 25 per cent in the last decade to an average of 13 9

New York's Ghetto with 640,000 per square mile, as against an *average* of 14,000 and 18,800 per square mile respectively. Thus the maximum average ratio of New York is just three times that of Chicago. It is these high spots that zoning and transportation must correct.

Suburban population is growing faster than in the city proper in these 32 large cities; but it is just the reverse in the 30 cities of the 100,000 class. This is clearly the effect of congestion, for the city areas of the 32 larger cities are one-fourth of the total metropolitan areas; in the smaller, one twentieth. (Table II). Here is involved a total of 26,000 square miles for future development, about the same as in the states of Maine, West Virginia or South

Carolina and 27 times Rhode Island. This is a measure of our future problem of transportation planning.

THE FUTURE OF MOTOR REGISTRATION
Motor registration should be considered at this point. My analysis

TABLE II—METROPOLITAN DISTRICT GROWTH AND DENSITY

	1910		1920		INCREASE 1910-1920			
	* (a)	† (b)	(a)	(b)	Pop.		Per Cent	
Population	over	100,000-	over	100,000-	(a)	(b)	(a)	(b)
(millions)	200,000	200,000	200,000	200,000				
Central city	17.7	3 2	22.1	4 1	4 4	0.9	25	31
Outside city	5 4	2 1	7 1	2 6	1.7	0 5	33	19
Total	23 1	5 3	29 2	6 7	6 1	1 4	27	26
Area (1920)	Areas (millions)		Square Miles					
Central city	1 5	0 47	2,370	730				
Outside city	5.3	9 6	8,270	15,000				
Total	6 8	10 1	10,640	15,730				
Density (1920)	Pop per acre		Pop. per sq. mi					
Central city	13 85	8 75	8,860	5,630				
Outside city	1 35	0 27	861	173				
Total	4 3	0.66	2,750	426				

NOTE. Largest increase in suburbs. Reverse in the case of the smaller city groups.
* (a) Covers 32 cities of over 200,000 population. "Outside" suburban zone includes areas about 10 miles beyond city limits with density over 150 per square mile.
† (b) 30 cities, 100,000 to 200,000 population.

The family unit is another index. Families in this country doubled in number from 1900 to 1920. They now exceed 24 million, but the number in an average family dropped from 5.0 to 4.3 from 1880 to 1920. While this average number in a family is lower in the cities than in the country, the average number of persons per dwelling is higher in the city—5.7 to 4.6. By 1940, there will be in excess of six million more families in cities to provide for, or a total of 31 million. (See Estimate, Table I).

(Figure I, page 207) shows a strikingly constant rate of absorption at the 20th power of the population (1905-1920), thence a decided recession, undoubtedly due to the approach to city "saturation." Had this rate continued, there would be 100,000,000 motors by 1930—an absurdity. There are now as many motors as telephones; in California, as many as there are families.
If the California density be reached over the United States, then clearly 30 million motors are in sight around

1940.² About 73 per cent of all passenger automobiles in the United States are in cities and towns of over 1,000 people—9.5 million or more—

² Families per motor, U. S. A. 44 in 1910, 1.7 in 1923.

averaging only 1.6 families per motor as against 1.93 in 1922.³ This registration has increased 27 per cent since 1922.

³ Based on the classification of *The Motor List*, 1922-23. (Nat. Auto. Chamb. Commerce.)

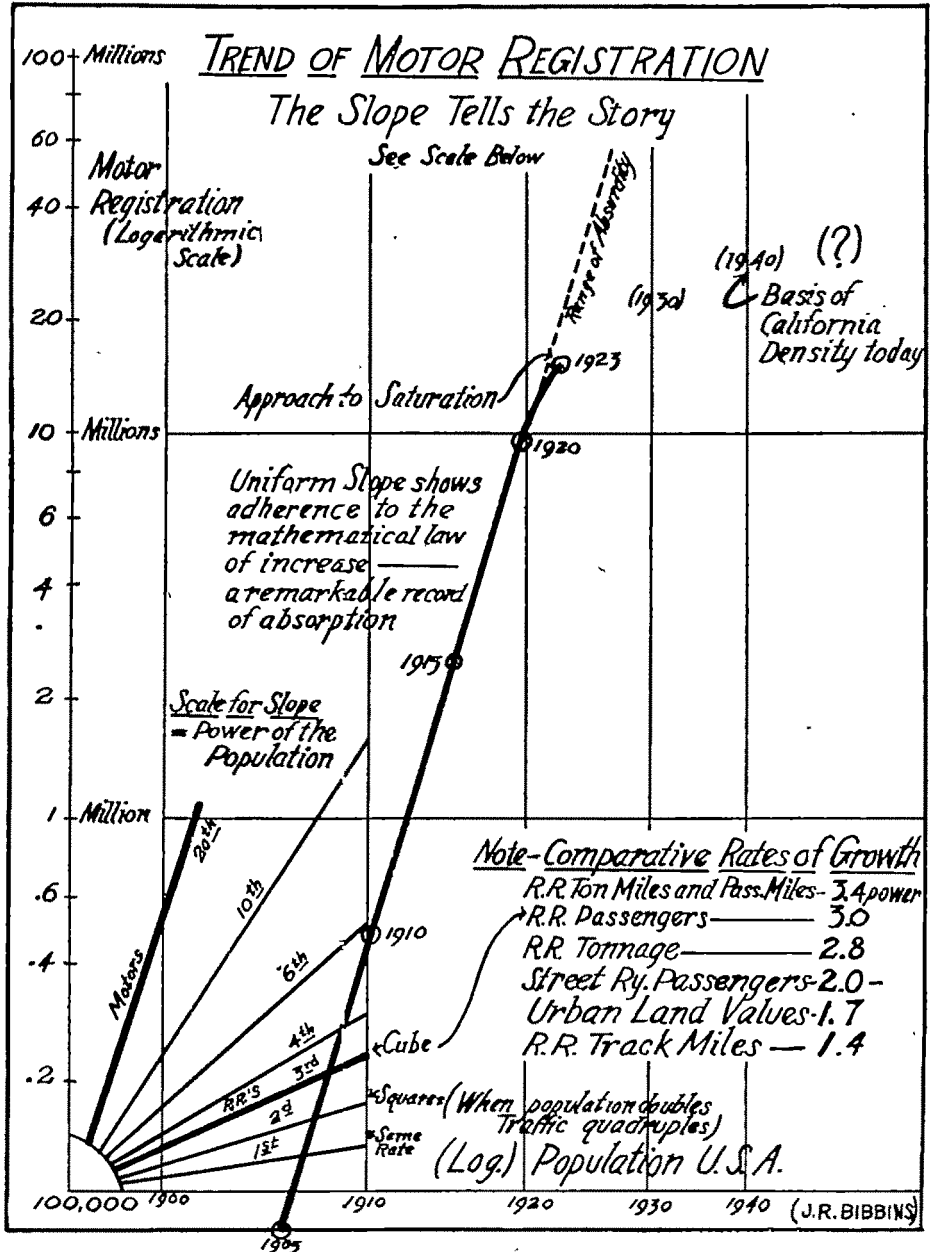


FIGURE I—WHY OUR TRAFFIC STREETS ARE “CONGESTED”
Low Traffic Efficiency Tells the Story

	RELATIVE SPACING INDICATES CAPACITY POSSIBILITIES											VEHICLES PER TRAF- FIC LANE PER HOUR
Average rush use..... (All outlets)	A											300
“Good practice”..... (Traffic street)	A	A	A	A	A	A	A	A	A	A	A	1,000
It can be done..... (Traffic street)	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA											3,000

Thus the motorist has become the national index of city development, for he himself is the taxpayer in supporting his own utility. The development of adequate traffic facilities will depend upon his own understanding and support. Fortunately, the obvious recession from approaching saturation conditions will give the cities some time to think and plan, to relieve transit proportionately and still keep the factory wheels going, for the present capacity (see Figure I) will soon be needed to meet replacements and new population.

EFFECT ON ZONING

Zoning is designed to curb “immigration” at the source, *i.e.* to discourage congestion. Already about one-half of the population of the United States is zoned in varying degrees, one-third by “complete” zoning. Of cities over 50,000, two-thirds of the population is zoned—54 cities out of a total of 144. Two hundred and twenty-one towns and cities of all sizes are zoned—over 25,000,000 people. But there are still a dozen notable cases of delay in cities above the quarter million class, having a total population the size of New York City.

But the curb to congestion lies in sky-line downtown and in density of population outside. In the central district the usual limit is 150–200 feet building height, although Chicago

broke through this to 265 feet. But few “Loop Districts” are now developed to one-half or one-third of the allowed limit. This means that congestion can double or treble without restraint. Obviously rapid transit will only hasten the debacle. The lid must be clamped on tighter and closer in to the center of things. In the residential districts, density control usually ranges from 500–600 square feet per family in apartment districts, to 7,500 feet in the private home areas. These limits permit gross densities, including street areas, of over 100,000 and 9,000 people per square mile respectively. The latter happens to be the *average density* of the 32 largest cities today. In fact, population can increase from two to eight times in these various zoned districts before “spilling over” into the adjacent zones, which alone will effect real decentralization. Of course this tendency is always present, but largely latent.

Zoning is of inestimable value as a stabilizer and corrective, and resting on the police power of the state, must proceed with caution. But, until the controls can be materially tightened, there will result little aid to traffic and transportation in reasonable time. Fortunately, quicker methods and results can be obtained through organization and planning of the traffic and transit system. Central traffic can be dis-

persed, sub-centers definitely established where desirable, and decentralization forced, through such media as routing, short lines, fares, expresses, stops, etc. However, in the long run, transportation and zoning are clearly dependent on each other.

Economic limitations are in some degree automatically corrective. Land values force outwards low-profit businesses. Higher cost of living does the same, especially when prices of labor and commodities are out of balance. Higher cost and time of transit encourage factories to move out nearer the home districts, where employes can walk to work. (Twenty-five per cent of them walk in certain large establishments in Chicago.) But here again, zoning interposes very definite restraints and justly so.

COST BURDEN OF TRANSPORTATION

The cost burden of transportation is a large one. It amounts to no less than \$2,000 capital for the average family and an annual operating cost of \$600. By 1940, another \$1,000 capital will be needed and an equal amount will be necessary for replacements. The complete transportation plant of the country—rail, water, road, trolley—has cost in excess of \$50,000,000,000 and \$15,000,000,000 per year to operate.⁴ About two-fifths of this is due to motor transport. Transit alone cost the cities from \$50 to \$75 per family in the pre-war period, and probably \$75 to \$100 today. An analysis of delivery and freight costs, to the people of Washington in 1917, showed a total of about \$200 per family. Motoring costs the city dwellers from \$300 to \$400 per family, judging by the number in the cities. Longer and longer haul is the rule in freight, passenger, transit and motor. There is much duplication and

lowered efficiency from congestion—all a burden on the taxpayer, the motorist and his family. The only way out is a more scientific plan of co-ordinated transportation.

London, the "bus paradise," offers a good lesson. Following the strike, unrestricted bus competition caused the London General Omnibus Company to add 1,000 busses, 25 per cent, to its equipment to meet a similar increase in private bus operations, all for the same traffic. Conditions now are so serious that government control is invoked, for both operating speeds and profits are vanishing. The streets cannot bear the burden. American cities should take warning.

FUTURE TRANSPORTATION NEEDS

Transportation needs of the future are fairly clear. My analyses (see Figure 1) show that transit traffic increases nearly as the square of the population increases; railroad tonnage nearly as the cube; railroad passengers faster; and passenger mileage and ton mileage around the fourth power of the population. Motor traffic in New York is said to grow somewhat less than the registration.⁵ In general, it may be said that, when population doubles, traffic as a whole increases eight times. That is, by 1940, facilities should be three to four times as great as those of today. At least we should plan ahead for doubling our present city operations. Anything less is suicidal. This means all forms of traffic and transportation—rail, road, water and, not to be forgotten, air.

Capacity of traffic throats and terminals is the key to the problem, for all traffic largely focuses there. Capacity is the product of size of unit and average frequency of movement, and speed comes only with relief from

⁴ See original estimates in author's address, New York Railroad Club, March, 1923.

⁵ *Plan of New York and Environs Report*, April, 1924. (Goodrich & Lewis)

obstructions and delays. The most important need of our cities is street, track and terminal expansion, and seldom has the problem been attacked as a whole. Chicago still has only two elevated tracks in the "loop" to serve thirteen feeders. New York's railroad service handles one-fifth of the entire rail-passenger traffic of the United States, or one-fourth of the balance. The suburban traffic is largely rapid transit, rather than standard steam service suited to monumental terminals. In consequence, city streets have to take it all.

Higher efficiency standards seem to be the only quick way out. In a recent survey, I found the "loop" street outlets being used to only 25 per cent of their possible capacity, and assuming solid parking at that. Capacity could be doubled, yet the city is "congested." New York is passing 2,800 motors *per traffic lane per hour*—ten times the average found above. Transit looping and complex terminal routing often consumes more time than the rest of the average rider's trip home. Yet a saving of only five minutes would increase the radius of the 30-minute time zone by one mile, 10 minutes by two miles—enough to serve perhaps double the population. The 30-minute zone practically always determines the residence areas of the majority of the people. The railroad demurrage bill (on the basis of 15 of the largest cities) indicates an economic loss of two and one-half millions per year, equivalent to taking out of service for a day every freight car of the United States and Canada.

But the railroads, by increasing the average car movement from 25 to 30 minutes per day, actually save half a million new cars, or perhaps one billion new capital to do the *same* work. Motorized terminals and off-track stations are now a possibility and store-

door delivery is a near prospect. Port layouts are often exceedingly indifferent to city traffic needs—an excessive burden on the commerce of the port. The interurban entrance problem is acute in many cities, greatly handicapping their possibilities as fast freight as well as interim rapid transit carriers. And intra-city trucking and commercial deliveries have received practically no effort for better routing and higher load-efficiency.

SOLVING THE PROBLEM OF TRAFFIC AND PARKING

The most dramatic problem is traffic and parking. Good railroad engineering is needed, with less unskilled experimentation and spasmodic legislation. Scientific organization of traffic and minor reconditioning could cut traffic congestion at once by one half—double the street capacity. Traffic signals are rarely used, best suited to special local needs, which vary at every point. The economic design of roadways has only begun to receive the study it deserves, likewise the parking problem in its larger economic aspects. A properly designed system, with reasonable enforcement, can easily *triple* present-day parking capacity. City transit would benefit enormously by the relief. While effective when enforced impartially, "no parking" is unscientific and unnecessarily severe in many locations. The present tendency is marked by feverish haste rather than sober study and planning. Detroit, now operating its city railways, has prohibited parking on 40 miles of its main business streets and radial arteries for four miles out. Yet it already has the example of the sudden development of a subcenter—Highland Park—with a combined local traffic greater than Fifth Avenue, New York City, and quite unprepared for its enormous burden.

TABLE III—THE MAGNITUDE OF THE PAVING PROBLEM

SUMMARY: 290 cities (over 100,000 population) by the Asphalt Association (*Municipal Index*).

Total yardage, gravel—better type	602 million yards
Types better than water bound macadam	470 million yards, 78 per cent
Equivalent mileage (at 30 feet width)	3,500 miles
Population of cities	86.4 million
Mileage paving per million	960 miles

FIRST 24 CITIES (OVER 250,000 POPULATION) WITH 500 MILES OR OVER

	Yards	Miles (30 ft. width)	Population (1920) million	Mileage per million
New York	46 2	2,630	5 62	463
Chicago	36 8	2,090	2 70	775
Philadelphia	24 1	1,370	1 82	764
Detroit	13 8	785	0 99	785
Cleveland	12 0	682	0 80	852
St. Louis	25 1	1,430	0 77	1,851
Boston	11 4	649	0 75	816
Baltimore	12 0	682	0 73	934
Pittsburgh	9 9	563	0 59	954
Los Angeles	11 4	648	0 58	1,118
Cincinnati	10 2	580	0 40	1,450
Kansas City	11.7	655	0 43	1,545
(both)				
Portland, O.	9 0	511	0.26	1,062
24 cities	233 6	16,600	20 79	800

12 cities under 500 miles.

Excluding New York, 920 miles.

Total U. S. population, Urban, 54.3 million

Paving mileage, at 920 miles million, 50,000 miles.

NOTE. Total U. S. electric railway mileage, 47,000 miles.

Metropolitan thoroughfares are called upon to take all this new burden of motor, bus and truck, as well as transit. Most street plans and systems are quite unprepared to cope with the present or future. Rail freight as well as transit traffic is rapidly gravitating to the streets—the common right-of-way. Maintenance and renewals, to say nothing of expansion, will grow in economic magnitude, supported by public taxation, district assessment on property benefited, or by the user. All this carries home the huge problem of amortization. Shall it be on the pay-as-you-go plan, an excessively slow development process, or pay-as-you-use, which spreads the benefit? Property assessment is being advanced today for subways, suburban rail serv-

ice, and streets and highways. Possibly a combination of all three may best meet the future. There are great opportunities for development of streets, transit and railroads, in the form of giant causeways, that are being neglected because of our tendency towards piecemeal planning. Billions can be saved to the future cities by planning on broader and more fundamental lines. Already, there are reported to be 80,000 miles of city paved streets,⁶ costing somewhere between three and four billions, or from 40–50 millions per million city population. It is unthinkable to attempt *doubling* their capacity on the *present* uneconomic methods of use. Arcading,

⁶ See Table II (compiled by Asphalt Association, the *Municipal Index*, 1924.)

elevated walkways and street-grade separations have yet to be worked out on some equitable plan of cost distribution. And bus transit will only accentuate the difficulty.

NEED FOR TRAFFIC-TRANSPORTATION PLAN

A traffic transportation plan for the future is a most imperative need. It cannot be postponed except by vast distortion of city growth. It demands co-ordinated effort of all transport and industrial agencies, in proportion as they contribute to, or are affected by, traffic (rail, trolley, road, water and air). It needs leadership. Cities will never be able to cope with the problem by abortive legislation or drifting. It must be attacked scientifically and in a large way. Niggardly support now will simply invite future disaster. Take the rise in land values alone, which is

rapidly destroying the possibilities of economical developments where most needed; witness the huge cost of cutting a new trunk thoroughfare down town.

But while transportation is indeed vital, it should be integrated in a highly sympathetic manner with all phases of the city plan, of which it is a distinct part. Our cities have grown around transportation. While traffic increases by *multiplication*, physical facilities have only grown by *addition*, if at all. The only logical end of this unbalanced race is the increased economic burden of living and doing business. It is strange that, with such colossal economic losses even now being experienced, cities should be so hesitant to undertake the microscopical expense of a thorough technical survey of their problems and planning for a future that is bound to come.

The New York City Motor Traffic Problem

By HAROLD M. LEWIS

Executive Engineer, Regional Plan of New York and Its Environs

THE recent, very rapid development in the production and use of the automobile has had very great effects on planning problems in American cities. All of the larger cities in this country have felt the need of taking some immediate steps to relieve the congestion which has resulted both in the business districts and on the main highway routes leading to them. In New York City the problem is particularly acute due to the topographical conditions. Manhattan Island, which is the seat of the business of the metropolitan community, is the center toward which a vast amount of daily traffic converges. The location of Central Park has tended to concentrate most of the business activities within

the area south of 59th Street, which has therefore become the crux of the problem.

Within this area, which contains about 8.35 square miles, it is estimated that the day population on a typical business day in 1924 is about 2,941,700 persons. This is intended to represent the number of people within the area within those two or three hours of the day during which most of the business is concentrated. About 982,000 of the total are either residents remaining in the area or transients. This daily influx of persons is also accompanied by a large amount of automobile traffic, the distribution of which is indicated in Figure 1, page 215, which represents the total of one-way traffic during

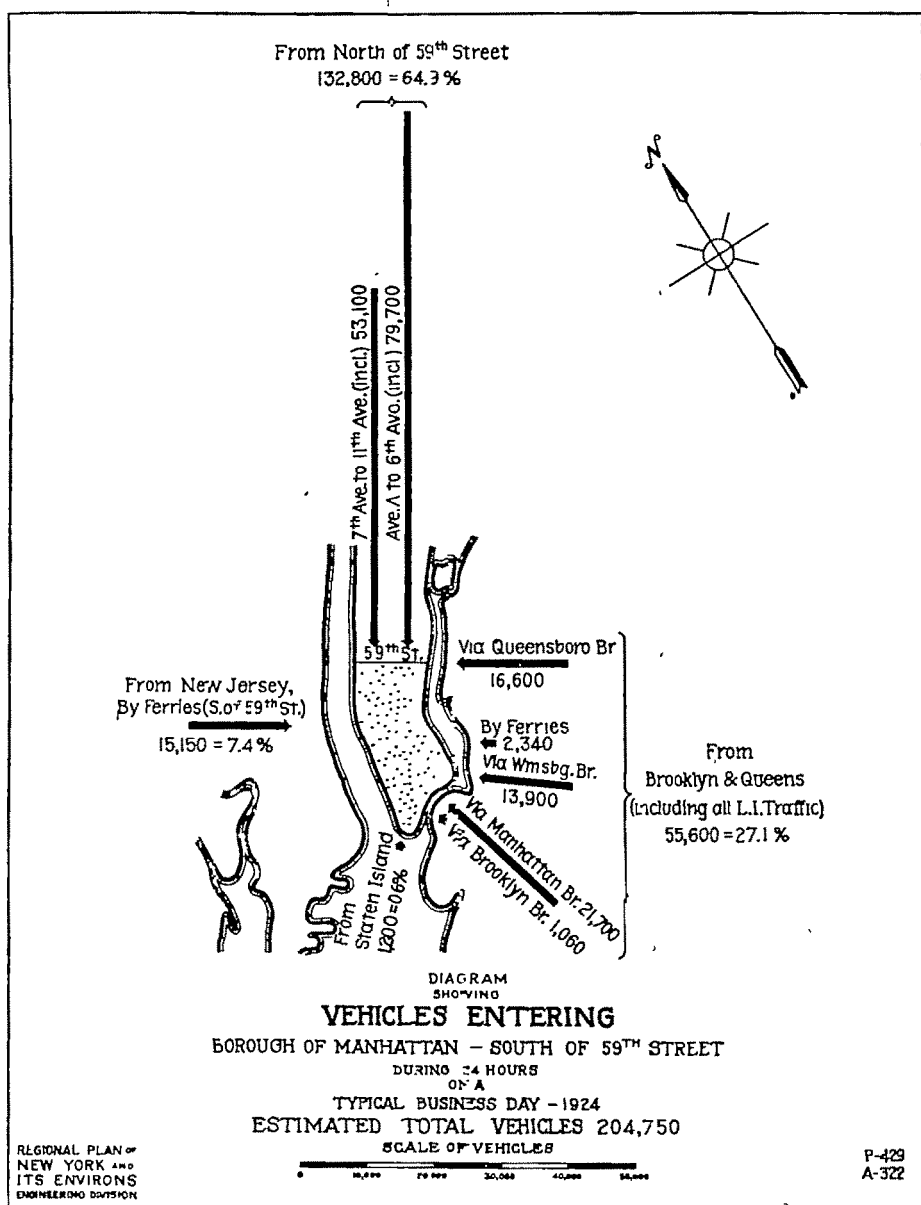


FIGURE I

twenty-four hours on a typical business day in the present year. Most of this traffic comes from the north and enters the district on fourteen north and south avenues. That which comes from Long Island on the east is almost en-

tirely carried by three of the four bridges indicated, and causes extreme congestion at the approaches of each of these bridges. Traffic from New Jersey on the west is still limited to the facilities furnished by ferries, which

causes long delays at both ends during the busy hours. The vehicular tunnels under construction between Canal Street, Manhattan, and Jersey City are expected to be finished in 1926 and will furnish much more direct communication. They will, however, also cause a great concentration of traffic at the Manhattan terminal which is appreciated by the city authorities who are considering street changes to relieve the situation.

The history of motor vehicles has been so short and so unprecedented in its growth that it is very difficult to arrive at any reliable basis for future estimates of numbers of vehicles and the resulting traffic. A study of curves showing both production and registration indicates that both these curves are still rising so rapidly that they cannot be extended with any degree of certainty. A study of traffic statistics, over the few years for which they are available, indicates increases which cannot be extended indefinitely without creating impossible conditions. The traffic problem is vitally connected with all other means of transportation and any phases of city planning which influence the location or concentration of business, industry or residence. The Committee on Regional Plan of New York and Its Environs is undertaking a comprehensive study of all those features which effect the planning and welfare of the New York region. Studies have been made of a district of about 5,500 square miles, roughly corresponding to an area of about fifty miles radius from the center of New York City. The solution of New York City's traffic problem hinges upon the successful solution of the problem for this entire area. This must not be considered from the highway point of view alone, but it must be carefully co-ordinated with all those other problems which are being studied in connection

with a regional plan. The present distribution of highway traffic at times of maximum density is indicated in Figure II, page 217, which shows very clearly the resulting burden that is thrown upon the main avenues within New York City itself.

REGISTRATION OF MOTOR VEHICLES

The future population of the New York District is the most potent factor in any estimate of the future number of automobiles. Several independent estimates have been made for future population in this district up to the year 1965 which correspond very closely and are undoubtedly sufficiently reliable for regional planning purposes. These indicate that by that year the total population in the entire area may reach 21,000,000, of which about 11,278,000 would be within the present limits of the city of New York. A study of the relations between population and registration indicates that curves showing the number of persons per motor vehicle have been following a quite definite law. There were in the entire city about 45 persons per motor vehicle in 1916 and in 1923 this figure had been reduced to about 16 persons per vehicle, while those for the different boroughs at the latter date varied from about 9 to 21 persons per vehicle. It appears that in 1935 there will be about six persons per motor vehicle in the entire city. Brooklyn would have about this same ratio and in the other boroughs it would vary from about 2½ persons per vehicle for Queens to ten persons per vehicle for Manhattan. These figures give some indication of the great increase in the use of motor vehicles in New York City since 1916 and bring out the fact that this use will continue to increase to a considerable extent. It is believed that by the year 1950 the relation between population and registration will become quite

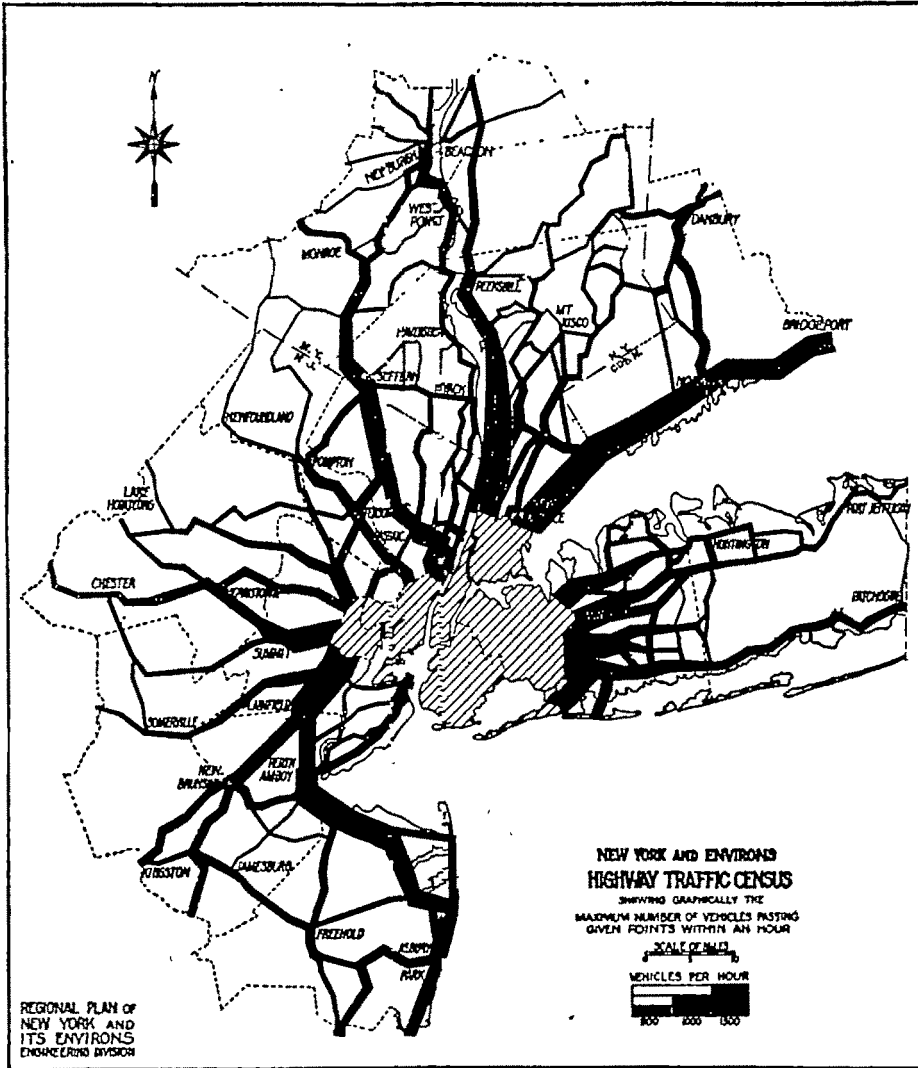


FIGURE II

stable and that from that date the number of vehicles will more closely follow the population. Similar studies have been made for the Environs of New York City and the total New York and Environs area. These show that the use of the automobile is considerably greater in the environs than in New York City itself. In the former there were 7.2 persons per motor vehicle in 1923, while the figure for

the whole area was 11.1 persons per vehicle.

With these figures as a basis and the estimated populations, the registration curves indicated in Figure III, page 218, have been obtained. These indicate that the 1923 registration in New York City of about 371,000 vehicles may reach a total of almost 1,200,000 by the year 1935. The total for the whole area during the same

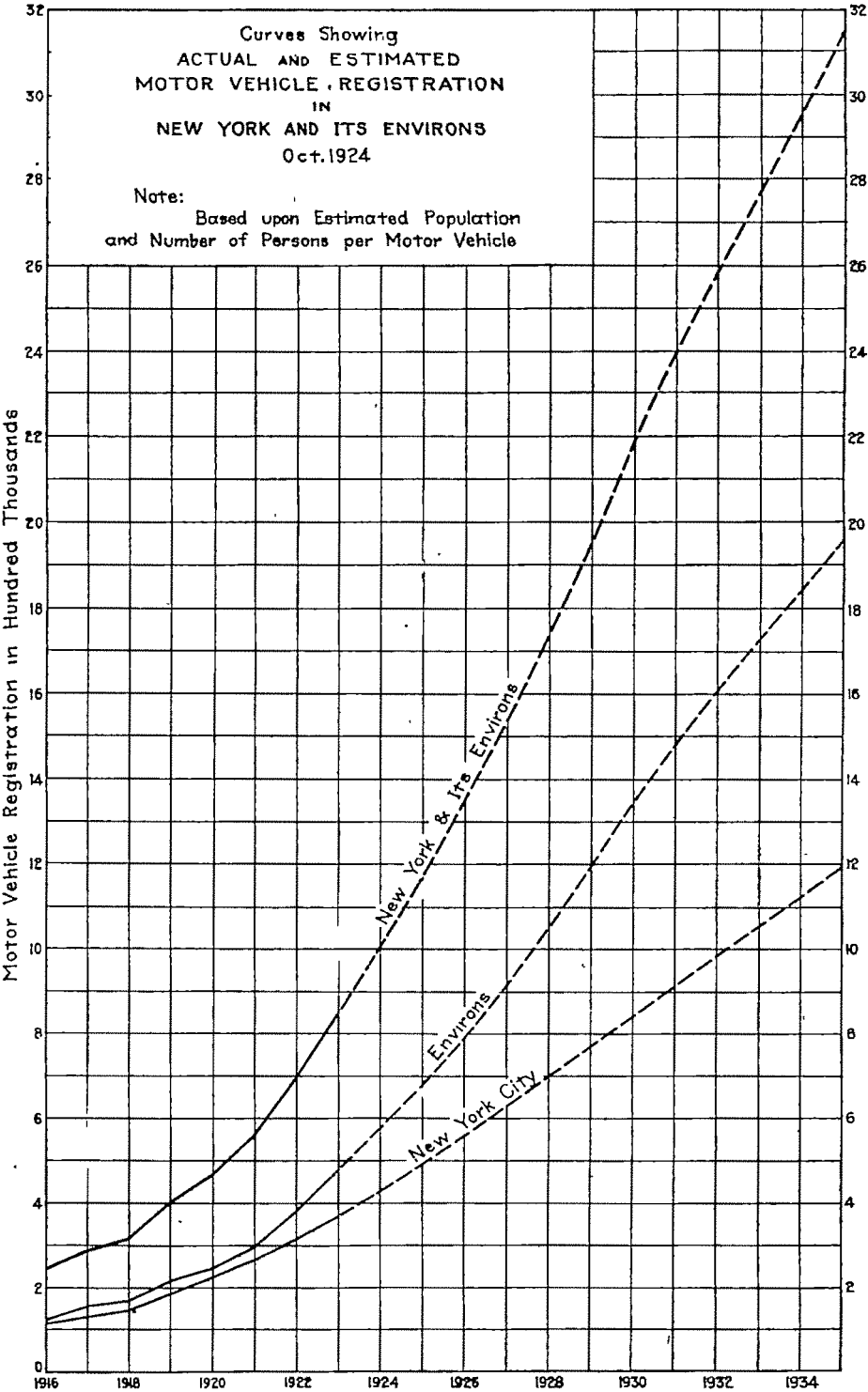


FIGURE III

period may increase from about 851,800 to 3,150,000.

FUTURE TRAFFIC

In order to translate the figures for increase of registration into a measure of traffic increase, it is necessary to establish some relations between registration and traffic. A study of available statistics for roads in the central part of the area indicated that this relation is different for different types of highways. Curves for different routes could all be expressed by equations of the form

$$T = kR^n$$

where T equals traffic, R equals registration, k is a constant, and n is determined from the slope of the respective curves on logarithmic paper. It appears that the value of n is higher for streets within the central part of the district and decreases as one goes further out from the center. The value of n appears to vary from about one third for roads in the outskirts of the region to almost unity for the main highways in the most congested district. This shows that the problem is most acute in the latter, as the traffic at such points has the highest rate of increase.

A careful study has been made of the existing capacity of the north and south avenues in the borough of Manhattan. Such capacities were computed on a lane basis, the capacity of one lane being varied with the conditions on various types of streets. It is assumed that the traffic counts made by the Police Department in the winter of 1922-1923, on 5th, 6th and 8th Avenues in the neighborhood of 42nd Street, were almost equivalent to the maximum traffic which such streets could accommodate. It is undoubtedly true that considerably more traffic might be forced through these streets,

but only under conditions which would so greatly increase the congestion and time consumed that they would represent very undesirable conditions. In fact it is believed that they would be such as to ultimately discourage business in these areas and start a backward movement in the development of the district. Certain definite proposals for the relief of these avenues have been frequently made and some of them are actually being carried out. These include the following:

- Removal of trolley tracks from 2d, Lexington, 7th and 9th Avenues;
- Replacing the 3rd and 6th Avenue Elevated Railroads by subways;
- Construction of a viaduct on the east side of the Grand Central Terminal;
- Widening of the roadways on Lexington, Park and Madison Avenues.

The last of these suggestions is now being carried out and the construction of a viaduct on the east side of the Grand Central Station has already been approved.

Figure IV, page 220, indicates 1923 traffic on all the avenues crossing 28th and 48th Streets, the maximum possible under existing conditions and the maximum which can be obtained by the carrying out of the proposals listed above. It is indicated that even then the capacity at 48th Street would only be about 167 per cent of 1923 traffic, while that at 28th Street would be about 234 per cent of 1923 traffic. This means that with the probable increase in traffic the point of saturation would be reached at 48th Street in about the year 1930 and at 28th Street in about the year 1934.

PRESENT REGULATIONS

The fundamental principle of traffic regulation is the desire to secure the maximum use of present facilities. As a physical measure, with the same end

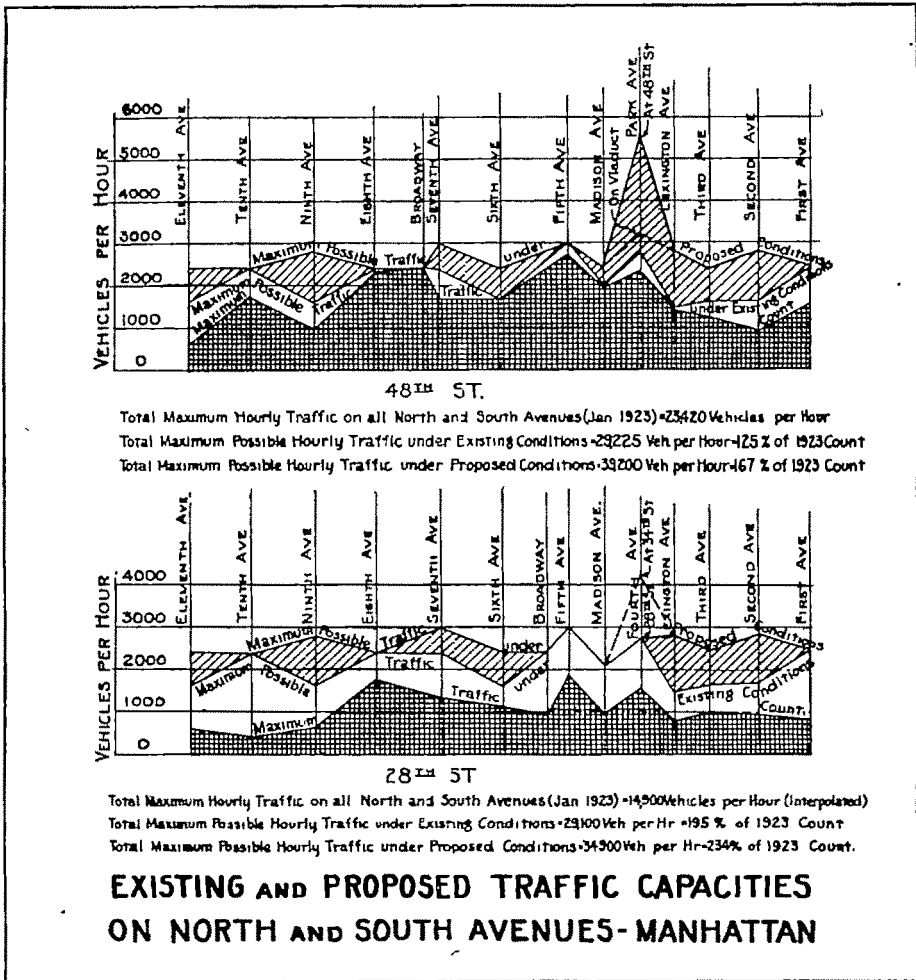


FIGURE IV

in view, the pavements of many roadways have been widened so as to provide ampler space and a higher natural speed. In many instances the addition of only a few feet has made it possible to provide for a full additional traffic lane width, thus materially augmenting the capacity of the thoroughfare. A still further step might be some form of legislation which would reduce the volume of unnecessary traffic so as to afford better facilities for that which is essential to community needs. The exclusion of pleasure vehicles from cer-

tain motor truck thoroughfares is explicitly in this direction.

Great progress has been made during the last few years in the regulation of traffic in the congested areas and many people believe that this has been carried, if not to the physical limit, at least to the limit which is desirable. The block system installed on Fifth Avenue and Park Avenue has greatly increased the capacity of those streets and has probably resulted in drawing to them a large amount of through traffic which could be better cared for

on other streets. In order to spread this traffic more evenly over the island, not only would it be necessary to resurface many of the avenues to make them more attractive for automobile traffic, but additional regulation would be necessary to deflect traffic to them. The means for regulating traffic in the less congested parts of the area have not been so well developed and there is undoubtedly considerable opportunity for improvement. This improvement would consist not only in small physical changes to direct the lines of traffic at important intersections and the installation of automatic signals, but in some cases the actual rerouting of vehicles.

During the past year or two there has been great increase in the use of the block system of traffic control. This system is most efficient where there is considerable traffic, both on and across the avenue under control, so that the time of halt is utilized by a large number of vehicles on the cross streets. Such conditions exist on the island of Manhattan and on many other main avenues within the congested district and this system has therefore been very beneficial at such points. This system should not be applied without a careful study of the special conditions in the locality.

New York has carried out, more than any other city, the system of one-way streets. In the borough of Manhattan this was started on the east and west streets in the southern part of the island and has recently been applied to all such streets south of 59th Street. It has been suggested that it should also eventually be applied to some of the north and south avenues.

It should be pointed out, however, that these avenues are in many cases from 700 feet to 900 feet apart and that one-way regulations will necessitate long detours for many vehicles going between two points within this district.

It is quite possible that in some cases the resultant length of haul may so increase the total distance traveled that the increase in traffic and the resultant delays would more than counterbalance any gain in freedom of movement.

Parking restrictions have been greatly increased in the borough of Manhattan during the past summer and were recently extended to thirty streets in the extreme southerly part of Manhattan. There has been considerable difficulty in enforcing the regulations imposed, but the need for them is generally admitted and the need for suitable provision of parking space in this district has been greatly emphasized.

Closely allied to the problem of parking of passenger cars is that of the unloading of trucks at the curb. In certain parts of the city, particularly within the wholesale district, this has resulted in reducing the capacity of many of the streets to a single lane of moving traffic. There are several cases in both Manhattan and Brooklyn where the owners have voluntarily installed loading and unloading spaces within their building lines. The result is not only the removal of a large amount of standing traffic from the streets but a considerable increased efficiency in the handling of merchandise. It is quite probable that a campaign could persuade many of the owners that it is beneficial for them to provide such facilities. If relief cannot be obtained in this way some restrictive ordinances will become necessary.

FUTURE REQUIREMENTS

As already stated, it is indicated that the growth of traffic will be quite different in the different parts of the New York and Environs area. Studies on the basis of counties have indicated that during the period from 1922 to

1965 the amount of traffic on the principal highways will vary from about 3.2 times for the counties in the outskirts of the area to 9.5 times for those within the central congested district. In order to provide for such an amount of traffic several things are obviously necessary. First among these is provision for by-passing the central area and particularly the southern part of Manhattan Island. It is now necessary for practically all traffic from New Jersey or Long Island to the Bronx or New England to pass through the business streets in Manhattan Island. A diversion of this traffic through by-pass routes would not only represent a saving of time but would leave the Manhattan streets more available for the traffic which naturally belongs there.

Closely linked up with the subject of by-passes is that of improved crossings of the Hudson River. Due to topographic conditions and the desirability of dispersing traffic coming into the southern part of Manhattan Island, it is generally admitted that vehicular tunnels would form the most satisfactory method of vehicular communication south of 59th Street. A bridge has long been suggested for the neighborhood of 57th Street, but its great expense and its interference with navigation and the possible resultant confusion at its terminals raises grave questions as to its feasibility. Another bridge site which is being seriously considered would cross the Hudson from Fort Washington Park, Manhattan, to Fort Lee, New Jersey. It is certainly true that the highway traffic system of the whole region can function much more efficiently if the barrier of the Hudson River can be reduced by suitable highway connections.

Within Manhattan itself it appears as if any new traffic facilities would be crowded to capacity as soon as avail-

able. This raises the question as to whether increased facilities may not tend to so encourage the use of the automobile as to cause increased congestion. This can only be avoided if the limits of height and density of buildings can be so reduced that it will be possible for the present streets to take care of the traffic necessary for the maximum amount of buildings allowed upon the blocks. While the present zoning restrictions in New York City were the maximum that it was thought could be adopted in 1916 when the Zoning Ordinance was passed, it is now obvious to those studying the problem that these restrictions at present permit a far greater building density than either the street system or future rapid transit systems can ever accommodate.

There are certain types of business which are advantageously grouped in the same vicinity. Others are more or less independent and could readily be decentralized with advantage both to themselves and to the general system of transportation. The results of the economic and industrial survey of the Regional Plan of New York and Its Environs indicate that a decentralization has already taken place in certain types of industry. This should be encouraged and should be accompanied by the establishment of supporting residential areas near to industrial sites.

Several of the larger cities in the United States are considering the possibility of eventually excluding motor vehicles from areas intensively devoted to business. To a certain extent this can automatically be accomplished, if suitable garage facilities are provided on the edge of the business district so that passenger cars could be left at such places and the streets within the business district left available for commercial use.

Much can be done by the segregation of traffic, which can be carried out along

two lines: first, by the segregation of through and local traffic, and second, by the segregation of trucks and passenger vehicles. The latter has in the past generally been done by the restriction of certain parkways and boulevards to passenger vehicles only. It is probable that in addition to such restrictions there will eventually have to be highways which are intended for trucks only and which passenger vehicles would naturally avoid or from which they would actually be excluded.

SUGGESTED PHYSICAL CHANGES

It has already been indicated by Figure IV, page 220, that some additional street facilities will soon have to be provided in the central part of New York City. Several different suggestions have been made for accomplishing this. One of the most interesting was submitted to the Regional Plan Committee by a group of architects, under the chairmanship of Mr. Harvey W. Corbett. The ultimate development of this proposal would mean the creation of streets in three tiers, in which all of the trolley or rapid transit lines would be placed underground, the present street level would be given over to free-wheel vehicles, and pedestrians would be provided for at the present second-story level. Studies have been made for a system of elevated driveways around the waterfronts of Manhattan Island and connecting with the Manhattan Bridge to Brooklyn and the Canal Street Vehicular Tunnels to New Jersey. It is intended that such routes would be restricted to fast moving,

passenger traffic. It is believed that they would provide for a large amount of the through traffic which is now crowded into the central business avenues, as is clearly shown by the diagram in Figure IV, page 220.

In connection with a study for a suburban rapid transit system, Mr. D. L. Turner, Consulting Engineer of the Transit Commission, has proposed the creation of two new avenues between 2nd and 3rd, and 9th and 10th Avenues respectively. These would be two-story streets 120 feet in width, the upper level being reserved for express motor vehicle traffic and the local business being restricted to the present street level. Another suggestion has been made for raising the grade on certain of the avenues and building subways in open cut at only a sufficient depth to provide clearance for the cross streets. The buildings on the avenues would be rebuilt to conform with the upper street level which would connect, by occasional ramps, with the existing street system.

The seriousness of New York's problem is fully realized and it is believed that from the suggestions which have been made and will be made some satisfactory solution will be found. It is hoped that the detailed studies being made by the Committee on Regional Plan of New York and Its Environs may help to arrive at a solution which will be part of a comprehensive regional plan for the entire district and which may also offer valuable suggestions to other metropolitan communities who are trying to solve similar problems.

The Plan of Chicago in 1924

With Special Reference to Traffic Problems and How They Are Being Met

By E. S. TAYLOR

Manager, Chicago Plan Commission

IT has been exactly fifteen years since the city of Chicago was put in possession of a city plan (November, 1909). It is hardly necessary to review the history of the Plan of Chicago now, and yet a few words about it may serve to link the past with the present more understandably. The authors of the Plan of Chicago were Daniel Hudson Burnham, Edward H. Bennett, and a staff of masterly artists, architects and technicians. Mr. Burnham had been persuaded to undertake the task (which he loved, had lived with a long time before he took it up officially, and which he considered the best work of his career) by the Commercial Club of Chicago. This organization is composed of one hundred of the leading business and professional men of Chicago. These men had seen the swift industrial and commercial development of the city; they believed that the future had even greater things in store on condition that the great future city were intelligently anticipated and provided for. Then, too, many of the members of the Commercial Club had been directors of the World's Fair, and they longed to preserve the beauty and order which had flourished so brilliantly and inspiringly for the short period of the exposition.

So the Plan of Chicago was laid out under the auspices of the Commercial Club of Chicago, and when the technical work was finished and embodied in a report, the whole was presented to the city of Chicago as a gift, with the

recommendation that a commission be appointed with the duty of studying the plan and recommending its execution to the proper municipal—or other governmental—authorities. The Chicago Plan Commission was accordingly established by act of the city council, and the members—representative men to the number of 328—appointed by the mayor, who also named Charles H. Wacker permanent chairman.

THE PURPOSE OF THE PLAN

The purpose of the Plan of Chicago is two-fold. Regarded in one light it is a commercial proposition. The projects in the plan are so designed that our streets, arterial highways, railroads and waterways may be put to their highest and best uses; and if to their highest and best uses, then also to their most economical and profitable uses.

Regarded in another light the purpose of the plan is a social or humanitarian one. The plan aims to conserve the natural resources—woods and water—surrounding the city for the health and pleasure of the citizens; to reclaim neglected neighborhoods; to give the worker quick and easy access to and from his home and his work; to reduce the cost of doing business and therefore the cost of living; and, in a word, to make Chicago a highly desirable city for residence as well as an equally desirable environment for business. With the humanitarian aspect of the plan is bound up the esthetic also;

in fact it is impossible to isolate any one of the projects in the plan and say of it, "This is exclusively a humanitarian measure"; or, "This is strictly a commercial measure." No, the Municipal Pier (completed 1915), for example, is intended primarily for shipping and is part of the Lake Michigan harbor development, yet it also makes one of the most popular and useful pleasure spots in the city. So too with Michigan Avenue, which since its improvement (completed 1920) has unified the north and south sections of the city and has also provided the setting for many of the public buildings used by the people—libraries, public and private; the Art Institute; Grant Park with its fountains and monuments; the Field Museum; and the Municipal Stadium (opened September 14, 1924). Every one of the projects in the Chicago Plan, if analyzed in similar fashion, would show the same two-fold significance.

HOW THE PLAN RELIEVES CONGESTION

The mastery of the traffic situation in Chicago is bound up with the execution of the Chicago Plan. Every Saturday night there are one thousand, one hundred and fifty more automobiles upon the streets of Chicago than there were on the preceding Saturday night. This increase goes on week in and week out. By the close of the present year there will be between sixty-five thousand and sixty-nine thousand more machines upon the streets of Chicago than there were on December 31, 1923. This gives an idea of the serious problem confronting the Chicago Plan Commission in its efforts to expedite the movement of persons and vehicles to and fro from one section of the city to another.

So far as the traffic features of the Chicago Plan are concerned, the Plan provides for three avenues of effort.

The first of these is the creation of a quadrangle of wide streets around the central business district. Next is the provision of every possible channel of communication between the heart of Chicago and the north, the west, and the south sides of the city. Thirdly, there is the provision for a system of wide thoroughfares, such as are usually called "major streets," extending from one end of the city to the other. Construction work on all three of these undertakings is now going forward.

The Chicago Plan Commission was established in 1909. Its efforts ever since have been directed toward carrying out first those improvements which would yield the greatest benefit to the greatest number of people, and which—if they were to be made at all—would have to be made without delay.

Such a plan of action clearly pointed to the speedy improvement of street traffic conditions within the central business district, known around the world as the "loop." The name was derived from the fact that the elevated railroads loop around the intensively developed "downtown" or central business district, but the character of this district is the result of causes which lie deeper than the presence of the elevated structure alone.

Chicago, as any school child knows, is bounded on the east by the waters of Lake Michigan. Its development, therefore, ever since the days of Fort Dearborn, has had of necessity to be south, west and north. But as the frontier Indian trading post grew, developing first into a village and then into a city, it ran against obstacles in all three of these directions which forced its business growth up into the air rather than outwards. These obstacles were the Chicago River and the railroad rights of way, formidable enough to the north and west, but even more so to the south, where nearly one

square mile of territory is absorbed by railroad occupancy to the extent that only one single north-and-south street connects the central business district with the south and southwest sides of the city through this district.

Thus it was that in laying out the Plan of Chicago the technicians provided for the development of a quadrangle of wide streets surrounding the heart of Chicago, for the purpose of allowing through-bound traffic to go around the congested district rather than through it; and for the further purpose of permitting the central business district to grow and expand normally, so that it should occupy several times its present restricted area of only one-quarter of a square mile.

Within Chicago's loop today there are nineteen streets. Upon fifteen of them are double-track street car lines with cars at present turning in all four directions at nearly every intersection. A new plan of traffic regulation eliminating left-hand turns in the loop is expected to better conditions somewhat, but thorough-going and permanent improvement will come only as the result of the completion of the Chicago Plan quadrangle. The improvement of the four streets comprising this quadrangle will—it is expected—be entirely finished within the next two or three years, and once the quadrangle is in operation it will cut present loop street traffic nearly in half. Traffic counts show that upon the downtown streets of Chicago every week day there are about 175,000 vehicles, 10,000 street cars, and nearly a million pedestrians. The four streets selected to form the boundaries of the quadrangle in the Plan of Chicago were Roosevelt Road (formerly Twelfth Street) on the south, Canal Street on the west, South Water Street on the north, and Michigan Avenue on the east.

The first street widening undertaken by the Chicago Plan Commission was the improvement of Roosevelt Road for the mile that it forms the southern boundary of the quadrangle, and on west for another mile through the west side of the city to Ashland Avenue, west of which the street was already 150 feet wide for some distance. The street was widened from 66 feet to 108 feet, and a viaduct and bridge over railroad yards and river, together nearly a mile long and 118 feet wide, are now under construction. The street widening proper was finished on December 20, 1917. Progress on the bridge and viaduct has been interrupted, first by the war and later by other considerations, but work is now going forward rapidly and when it is done the city will be further unified by an extremely efficient connection between the west and south sides.

The next street widening project undertaken by the Plan Commission was the improvement of Michigan Avenue, the eastern boundary of the quadrangle. Formerly, all traffic using Michigan Avenue between the loop and the north side of the city had to make a sharp detour just at the edge of the Chicago River; cross that stream by means of an old, ramshackle, center pier bridge, known as the Rush Street bridge; and then turn back into Pine Street which merged farther north into Lake Shore Drive and Sheridan Road. This street was 66 feet wide both south of the river, where it was known as Michigan Avenue, and north of the river as well, where it was known as Pine Street. Today both streets have been made into one, and Michigan Avenue is 141 feet wide, with an upper level (between Lake and Ohio Streets) extending from building line to building line used entirely for boulevard or light traffic; and with a lower street beneath for heavy commercial vehicles.

When the Chicago Plan Commission first advocated this improvement there were 9,725 vehicles per day crossing the river by means of the Rush Street bridge. Today nearly 73,000 vehicles per day cross via the upper and lower levels of the two-level, bascule, Michigan Avenue bridge which has replaced the Rush Street structure. This is a number of vehicles sufficient to give an automobile ride simultaneously to every inhabitant of a lusty young city like Dayton, Ohio, for instance; or like Dallas, Texas.

The improvement of Michigan Avenue has been successful beyond almost all hopes. It was an object lesson that won many friends to the Chicago Plan. This is perhaps the place to say that every improvement in the Chicago Plan has its own intrinsic usefulness; yet, although each single project can stand alone on its own merits, as they dovetail together to form the whole plan, they represent the best possible physical development for the city.

The two-level Michigan Avenue improvement, separating traffic automatically by providing separate levels for different classes of vehicles, cost about \$16,000,000. It was completed in 1920 and has already paid for itself six times over. Not only has it increased traffic facilities more than 700 per cent and eliminated an annual charge of \$2,000,000 resulting from traffic regulations which were formerly necessary, but it has also increased surrounding property values more than \$100,000,000. The cost was borne half by the city as a whole and half by the property in the benefited (specially assessed) district.

Chicago secures its revenue in part by taxing the real estate within its borders. Hence an increase of over one hundred million dollars in the value of property surrounding the Michigan Avenue means, if the increased value

of this property is taxed in the customary manner, an annual revenue to the city of \$4,000,000. The city was therefore speedily reimbursed for its outlay upon the Michigan Avenue improvement, and every year hereafter will have this increased income that it could have obtained in no better way. So far as the property owners who were specially assessed to pay their share of the cost of the widening are concerned, for every dollar which they paid they have received twelve dollars back in the increased value of their property.

The western boundary of the quadrangle, Canal Street, is now in process of being widened from 80 feet to 100 feet at the expense of the railroads embraced in the west side Union Station group. When these roads wanted to erect a new terminal in Chicago—a terminal which, by the way, is now nearing completion and has involved the expenditure of some \$75,000,000—one of the improvements to which they agreed, upon the recommendation of the Chicago Plan Commission, was that of widening Canal Street, upon which the new terminal faces, at their own expense. The necessary work has practically all been completed and portions of the widened Canal Street are now being used by the public.

Upon the northern boundary of the loop district, along South Water Street, there has been ever since the oldest Chicagoan can remember, a great produce market. So congested has this market been all day long that not only was a very important east-and-west public street entirely absorbed by private business, but also every north-and-south street, connecting the central business district with the north side of the city, was jammed to such an extent that all moving traffic was confined to the 20-foot-wide street car right of way in the middle of the streets. The widening and double-decking of

South Water Street began October 1, 1924. That is to say, the wrecking of buildings to make way for the new embankment began. This work was, of course, preceded by years of technical study, by a course of judicious publicity, and by a long case in court for the condemnation of the property and the acquisition of the land. The new embankment is to be a mile and a quarter in length, from the intersection with Michigan Avenue to the bend in the river at Market Street. It is to be a two-level street all the way, the upper surface for traffic of all classes, and the lower street for heavy commercial traffic which will have a course unobstructed by any cross traffic. On January 1, 1925, this new street will, by city ordinance, be named Wacker Drive, in honor of Chairman Charles H. Wacker of the Chicago Plan Commission, in recognition of his distinguished services to the city.

This improvement gives the city two new streets where before it had none at all; for although South Water Street existed nominally, in practice it was entirely given over to the produce market, and was a thoroughfare for market vehicles only. The market is now moving to a more appropriate location, and the future development of the upper level of Wacker Drive will be of the very highest type of office buildings, hotels, theaters, etc. On the upper water side of the 110-foot-wide street will be a promenade with a handsome balustrade and steps at intervals leading to the lower level, which is to be 135 feet wide, 25 feet of which is dock space. The lower street will be used entirely by heavy commercial vehicles. It is wide enough for six lanes of trucks, three each way, at the same time. The lower level of Wacker Drive will provide a direct route along the northern edge of the loop district, unobstructed by any

cross traffic, for commercial vehicles traveling between the boat and railroad terminals east of Michigan Avenue and the warehouse district on the west side of the city.

In addition to the very great benefit which the city will derive from the acquisition of two new streets through its most congested area (the central business district), the improvement of South Water Street means even more in the relief of congestion in this city. It is the last link in the quadrangle of wide streets intended to by-pass through-bound traffic around the loop.

Counts of the vehicles entering and leaving the loop have shown that every sixth vehicle today is bound to or from the South Water Street produce market. The removal of the market, therefore, brought about by the widening of the street, will take from loop thoroughfares 16 per cent of the traffic now upon them. This figure is in addition to the 25 per cent reduction in loop traffic that will come from enabling through-bound vehicles to go around the congested district instead of through it, as they must today. Together the two represent a reduction of 41 per cent in present street traffic—a reduction which will afford positive relief from the condition of near-strangulation from which Chicago is now suffering.

Besides the quadrangle development, the Chicago Plan Commission is advocating and has brought about the construction of a number of additional street connections between the loop, the north side, and the west side.

An insufficient number of through streets is the greatest handicap under which Chicago traffic labors outside of the loop. The Plan of Chicago fully recognized this and the Plan Commission has worked on the matter until today construction work is going forward on the widening of Ashland

Avenue and Western Avenue (north-and-south streets), and upon the extension of Ogden Avenue (diagonal south-west-northeast) and Grand Boulevard (north-and-south). In court are the recommended widenings of five streets just west of the loop, the improvement of which will mean a remarkable acceleration of commercial traffic, and which will also lead logically to the development of a warehouse district. These streets are Polk, Taylor, Clinton, Jefferson and Desplaines Streets. Indiana Avenue and Twenty-second Street, the one north-and-south and the other east-and-west, are also in court preliminary to construction work. Prepared for action by the City Council is La Salle Street (north-and-south), the development of which is going to be second only to that of Michigan Avenue in its effect upon relief of traffic congestion, high-class development of property, and the increase of property values.

Prepared for action by the Federal Government is the Plan Commission's recommendation to acquire the two-block site on Canal Street between the Union and Northwestern Stations for a much-needed new main post office. This site combines many striking advantages, one of the most important of which is that it would be accessible from the south, west, and north without entering the loop and meeting the street congestion there, while at the same time it would be easily accessible from any part of the loop.

Besides the Union Station development already referred to, a second equally extensive and important terminal project recommended in the Plan of Chicago is under way on the south side. This project embraces the rebuilding of the Illinois Central terminal (at an estimated cost of \$88,000,000) on Roosevelt Road to face Grant Park. These two terminals still do not cover the whole terminal situation in Chicago.

There are other groups of railroads which have prepared plans for loop terminals to replace and improve upon the facilities now in use. Intimately associated with the proper solution of this problem of a third terminal is the straightening of the south branch of the river from Polk to Eighteenth Streets, which the Chicago Plan Commission vigorously advocates, and for which the Federal Government gave its consent in 1923.

From the standpoint of the relief of traffic congestion the river straightening would be one of the most effective things that could happen, for it would then be possible to extend five loop streets south to connect with their southerly extensions through the city, and with Archer Avenue—a great diagonal artery extending southwest through and beyond Chicago. As it is now, these five streets—Market, Franklin, Wells, La Salle and Dearborn—come to a stub end and the traffic which they should bear is thrust on to the few and over-crowded through streets which we now have.

PRESERVING CHICAGO'S NATURAL ASSETS

The three most precious natural assets which Chicago possesses are Lake Michigan; the forest lands to the north, south and west of the city; and the Chicago River. The Chicago Plan Commission recommended the conservation and improvement of all three. We have already described the plan for the reclamation of the south bank of the river in the heart of the city. The Chicago Plan Commission has taken up the other two recommendations with equal energy. With respect to the lake shore the conditions, briefly summarized, were as follows:

In 1869 a park system was laid out for the city. This included two parks along the lake shore—Lincoln Park to

the north and Jackson Park to the south. In the early 90's Grant Park, on the lake opposite the center of the city, was added to the system. There still remained a stretch of five miles between Grant Park and Jackson Park where the lake shore was completely absorbed by railroad tracks, and to which the people had no access. As a health and pleasure giving retreat the lake in this section was a total loss. Now, in 1924, after the settlement of a long suit to which the City of Chicago, the Illinois Central Railroad Company, and the South Park Commissioners were parties, there is a tremendous amount of activity in this section. The lake shore is being developed into a park 1,188 acres in extent by filling in the shallow water. The new park lands are being laid out in accordance with designs submitted by the Chicago Plan Commission. They will contain all the features for pleasure that are to be found in the other Chicago parks, including a lagoon 600 feet wide; and two drives (referred to now as the Outer Drives), which will prove extremely helpful in by-passing boulevard traffic swiftly for long distances. North of Grant Park the Lincoln Park Commissioners have plans to make connections with the new Outer Drives and to extend Lincoln Park to the city limits on the north, and much construction is going on now. When all this work is completed Chicago will have an uninterrupted waterfront drive forty miles long through practically one continuous park. Even now one frequently hears "Gary to Milwaukee" given as the probable extent of the lake front drive as it is popularly regarded. The rehabilitation of the Illinois Central Railroad facilities, including electrification of its services, and the provision for bridges to cross the tracks into the new park at approximately every mile, were important parts of the negotia-

tions for the park development of the lake shore to the south.

In accordance with the recommendation of the Chicago Plan with respect to the forest lands, the Forest Preserve District of Cook County was organized in 1914. There were at that time about 85,000 acres available, and of these approximately 27,000 have already been acquired. These lovely tracts, which form a belt about the city, are being kept in a state of nature, and no words are expressive enough to say what they mean now to a great urban population, and what they will continue to mean as time goes on.

THE CITIZENS ARE FOR THE PLAN

From the very outset the Commission has understood the importance of carrying the plan to the people that they might be thoroughly informed about it. All the construction work on plan projects—completed, in progress, or about to begin—has been preceded by vigorous educational campaigns. The plan is so good, so logical, so economical, and so forward-looking that it needs but to be explained to have its advantages understood. The Commission has taken it, by means of illustrated lectures delivered on an average of once a week for years, to thousands of citizens. It is described in a textbook prepared in the office of the Commission and used in the eighth grade of the schools since 1912. Its projects, collectively or individually, have been described in pamphlets issued and distributed by the thousand from commission headquarters. The methods of the Commission,—non-political, non-sectarian, and non-sectarian,—and the plan itself because of its obvious merit, have had the support of the press in a way that no other movement in Chicago has ever had. The newspapers of the city are a unit in upholding the plan, and of course

their agency in keeping the plan before the people is most powerful, influential and valuable.

The powers of the Chicago Plan Commission are advisory only. The execution, therefore, of plan projects rests with the public officials, certain of whom are always ex-officio members of the Plan Commission. The Commission enjoys today, and has always enjoyed, the hearty co-operation of the men in public office.

At the moment then that the Plan of Chicago attains to its fifteenth anniversary, we find Chicago citizens believing so warmly in their plan and reposing so much confidence in the Plan Commission, that construction work on plan projects is going on in every part of the city; that plans are

matured for public works and other improvements, the construction of which is just waiting upon the courts, etc.; and that the technical staff of the Plan Commission has before it for study nearly a hundred projects for the facilitation of traffic. In fact, the guide out of a distressing traffic turmoil in Chicago—and the only guide—is the Plan of Chicago.

Subways, sub-sidewalks, overhead sidewalks, alley sidewalks, escalators, arcades, and stricter traffic regulations have been suggested for the relief of traffic congestion in Chicago; but, when all has been said, the major projects of the Chicago Plan Commission are still fundamental. They must be settled first, after which the others can follow intelligently.

The Plan of Philadelphia

BY JOHN IRWIN BRIGHT

Architect, Philadelphia

IN any discussion of the City Plan of Philadelphia, there should first be a statement of the problem, setting forth as clearly as may be its various elements. It can be expressed in diagrammatic form with the headings arranged in what I believe to be the order of their relative importance:

1. Housing
2. Business
3. Traffic:
 - Water
 - Rail: Long Distance Freight
 - Long Distance Passenger
 - Local Transit
 - Automobile:
 - Trucking
 - Passenger
 - Pedestrian

To live among pleasant surroundings is a fundamental human longing. We work to attain this end and the main

function of intra-urban transportation is to afford a physical link between the home and the place of employment.

We have here the frame work upon which the whole structure of city planning must be built.

It cannot be too strongly maintained that the question should be primarily one of sociology. The home must receive our first attention, for it is incontrovertible that a poorly housed people is symptomatic of a serious flaw in the structure of our civilization. What is a home? Is it a single house or a tenement? Are bathrooms and dining rooms necessities or luxuries? The form of the city is the expression of just such intimate details, and if we adopt a transportation system and a street plan which in their operation foster overcrowding, in which the in-

terests of business take precedence to those of humanity, let us do it consciously and with deliberate intent.

The vast majority of men are engaged in earning their daily bread in places more or less distant from their homes. Philadelphia lies to the west of the Delaware and on both banks of the Schuylkill. Most of the land is suitable for building and the vastness of the area, offering but few physical obstructions, has brought about a tendency to spread in all directions. But it lacks a natural, well-marked sense of direction and the vagueness of its reaching-out has not prevented an intense concentration in the original center of the city, where the large shops, office buildings and banks are located. This condition is characteristic of most cities standing on featureless plains. They have no place to go, or, what amounts to the same thing, they have too many places to go. As a consequence, there is a huddling together at one place only.

The planner cannot ignore these facts. Should he advocate transportation and highways which will reduce the distance between the factory and the home, evolving a policy founded on the proposition that living conditions must come first in the scheme of things, or should he allow these vital matters to be decided by the land speculator?

Statements in the Socratic form demand answers, and Philadelphia, lacking the authority of a City Plan Commission, is silent, waiting for what the morrow will bring forth. The appointment of such a body will certainly not bring about the millennium, its opinion will not always be the council of perfection, but in the words of a celebrated engineer, "I offer this theory. It may not be unassailable. I myself take it with a grain of salt. But at least it is something to work from and anything is better than chaos."

BUSINESS EXPANSION AND RESULTING CONGESTION

The second heading, *Business*, covers a vast range of activities. But to be specific, just where shall our factories be placed? Quite evidently they can only exist where they are adequately served by rail, trucks and shipping, and where they can be reached by their operatives without prohibitive loss of time. But are we sure that the railroads and the docks are anything but a horrible jumble? Why increase the instability of a basically unsound structure? The City Plan Commission must at least express its opinion on these things even though its advice is not followed.

And then there is the ever-increasing pressure at the center of the city. Every morning hundreds of thousands of people rush to an area of less than a square mile and try to stand on the same spot. The office buildings stack them in twenty or thirty layers high where they remain all day and at a given signal they rush for home. Wouldn't ten layers be enough—wouldn't five layers be even better? Here is a question that demands an immediate answer, and to obtain it a Zoning Commission was appointed. Zoning can only be beneficial as an elaboration of a well-conceived city plan, and in this case, whilst its members were wisely chosen, it had the effect of sending a little boy to do a big man's job. He tried hard and failed. When he urged that the number of layers be limited to permit the fellow at the bottom of the pile to get a breath of fresh air, a prominent officer of the city government spoke as follows: "The men who wish to build these great buildings are here. They represent at least a billion dollars. What do you zoners represent?" In ring parlance that was one on the button, and the

Zoning Commission has not yet recovered from the blow. So things are allowed to drift and congestion increases day by day. Year by year, buildings increase in size and number. Streets designed for a few horse-drawn wagons are now forced to contain huge street cars and countless automobiles. Every one cries out for relief and every suggestion is condemned as impracticable.

A word must now be devoted to the port and to the through railroad lines. Here again a worn-out system, innocent of any comprehensive thought in its plan, is made to serve in some fashion, the metropolitan area of which Camden is as much a part as is Philadelphia.

In the beginning, sailing ships of a few hundred tons burthen nosed into the river bank on the Philadelphia side. Gradually the docks extended up and down the river until now in a casual, unorganized sort of way, they stretch for fifteen miles and use both sides of the stream. While tonnage was increasing from thousands to millions, the city was presenting a wider and higher barrier between the river front and the back country, and it is the hinterland which gives expression to a world port—the city acting mainly as a clearing house and a point of transfer. It is becoming more and more difficult and costly to move freight through this vast center of population, and all the merchandise is eventually handled on a river street entirely inadequate for the purpose. The whole thing simmers down to one point. The shipper asks but one question,—“How much per hundred pounds does it cost to transfer at the dock ocean-carried freight?” The cost at Hamburg is one-third of the New York charges, Philadelphia shippers pay in direct charges two and one-half times as much as the German merchant and then a large, additional, indirect sum. The handicap is almost entirely due to the

absence of an orderly, scientifically conceived plan.

The trunk-line passenger and freight system is similar to the port in so far as it is an elaboration of a planless competitive system. It serves the port so poorly that ocean freight for the main part simply ignores its existence and travels on to New York. How can some order be evolved from this confusion?

As if these difficulties were not enough, the automobile has suddenly descended upon us. At one stroke the city has burst its bounds, and for all practical purposes Philadelphia can now be regarded as a circle having a diameter of sixty miles. High-speed suburban trains have contributed to the expansion, but the automobile is by far the most important factor. From all points of the compass, these intensely modern vehicles converge towards the City Hall, each car occupying at least 150 square feet of the roadway. Often there is but one occupant. Twenty years ago, this same citizen was content with four or five square feet. The streets are no wider than they formerly were, but there are many more people and they insist upon many times more elbow room. They need roads from their homes twenty miles away and therefore we are beginning to see that the city itself is only part of a region. The vision must extend beyond the horizon and, for purposes of planning, political subdivisions must be disregarded. The Philadelphia approach to the new bridge is the affair of Camden in a very real sense, for if there is not freedom of movement on the west side of the river, the most adequate plazas and avenues on the east side will fail of their purpose. In a pipe of water any obstruction stops the flow in its entire length. City planning is but a detail of regional planning. It is a subdivision divided again into a multitude of subheads which can only be treated intelligently

as parts of a general scheme. The automobile has widened our grasp of this subject. A man who drives his machine has a very practical interest in the entire extent of the road and everything pertaining thereto. Political boundaries mean nothing to him.

There are many other things to be considered in the city or regional plan; public buildings, schools, water supply among them. But no one part can stand alone. The railroads, the port, housing, the street system, must be regarded as forming a complicated machine in which each wheel and shaft and bearing performs a certain function. But in this machine, constantly repaired and modified, there is one important wheel which is causing abnormal friction and must be redesigned. The highways generally, both regional and local, are being subjected to an impossible strain. Each population center in the region must be interconnected by low-grade, broad and wellpaved highways. Philadelphia is fairly well provided with divergent roads, but lacks almost entirely circumferential boulevards. As a consequence automobiles and trucks cannot get from one radial road to another without being forced into the center of the city. This causes congestion and needless loss of time. Through travel between New York and Washington, between Allentown and Chester or Reading and Trenton would be greatly facilitated by such a road. Its elements exist at present, but are so tortuous and narrow that it is quite useless.

SUGGESTIONS TO ALLEVIATE TRAFFIC JAM

Circulation in the center of the city presents a problem of its own. The streets are narrow, it is true, but the main trouble lies in the constant stoppage of traffic at street intersections. Street widening either by setting back the buildings or arcading them is im-

possible in any adequate degree. The time is rapidly approaching when our nomenclature will have to be revised and what we now call a street will have to be regarded as a traffic conduit. A new terminology often stimulates our mental processes.

We recognize three distinct classifications of traffic: rail, pedestrian and the automobile.

Rails can be elevated or depressed and thereby separated from the other two divisions. But even if the surface cars are abandoned, they would probably be replaced by hugh auto-busses, leaving the situation much as it is at present. The planner must design a "traffic conduit," in which there is no serious friction either in the straight runs or at intersections. This can be accomplished by using the present roadway for street cars and pedestrians. As a rule the cars come to a full stop at every intersection, and pedestrians can safely cross from one side to another during the time required to load and unload passengers. Automobiles must occupy a higher level and the platform must be arranged to allow vehicles approaching each other at right angles, at the intersections to continue on their way without stoppage. This is an essential detail, for it is generally realized that the main cause of congestion is the constant immobilizing of traffic at points where highways cross each other. We will have a two-storied street. With the addition of a subway for the use of high-speed trains and a pedestrian walk above the automobile right of way, the traffic conduit will contain four tiers.

At first glance this seems a dreadful thing, but what else is to be done? A horizontal amplification of the corridor is ineffective. A closed valve stops the flow in a six-inch pipe as absolutely as it does in a one-inch pipe and the traffic policeman, blocking east and west movement to allow north and south

vehicles to proceed, reversing the process every few minutes throughout the day, turns, as it were, a valve. Under this system a one hundred-foot roadway is quite as congested as a thirty-foot roadway. If we really wish to reduce overcrowding, we must get rid of the obstructing valves. It may be some time before this can happen. The suggested design might be greatly improved, but it is nevertheless a fact to be confronted that a sufficient head of water will burst any pipe. We are pouring more into our streets than they can hold, and if they cannot bulge sideways they must be increased in size vertically.

In so far as the treatment of the central part of the city is concerned, the task seems hopeless; and it is. Conditions can be improved in a measure and in detail, but "solution" is a word to be used with great circumspection.

Planning will help, at least for a time. A two-, three- or four-tier roadway will relieve some of the immediate pressure, and that is all that may be said for it. Our accepted philosophy of business, of land tenure and of credit is based on congestion and any proposal to relieve it cuts straight across every vested interest. A wider or more effective avenue will be accepted under the one and only condition, that it will increase and not diminish the number of its users.

The city planner must be given the

money to work with. A plan is generally a valuable advance notice to the dealer in land. He is the one who reaps most of the profit. When the city finally decides to execute the work, it condemns property under a valuation much of which has been created by the proposed improvement. Assessments of benefits, taxation based on higher valuations help to a certain extent but do not go far enough. I am speaking more particularly of new projects similar to the Parkway. It is a financial system as unsound as ever conceived by the brain of man and under which city planning is enfeebled to a point of inanition. If there is a remedy it lies in the right of Excess Condemnation. Working under such a law, more land can be taken than required for the actual purpose in mind and at a later date the surplus may be sold. It will not entirely prevent land speculation and the city government will not be able to get all of the profit, but it is quite possible for it to use this instrument so effectively that it may be reimbursed for part, or even in some cases, all of the expense. The passage of the act is rendered doubly difficult because there will first be required an amendment to the Pennsylvania Constitution. But once written in the Statute Books it will advance the cause of City Planning more than any other one thing.

Philadelphia's Traffic Problems and Their Solution

By J. BORTON WEEKS

President, Keystone Automobile Club

PHILADELPHIA is one of America's greatest centers of automobile traffic. Added to the 190,000 automobiles owned by the residents of the city and its immediate suburbs, are the thousands of commercial and pleasure vehicles coming daily over its great tributary highways, such as the Lin-

coln Highway, from the West and New York, the Chester and Baltimore Pikes from the South, the Willow Grove Pike from the North, and the Delaware River ferries from the East, as well as numerous other arteries of lesser importance.

For the handling of this traffic the

city has 1,486 miles of streets within its area of 180 square miles.

I. PHYSICAL ASPECTS

The traffic problem of a large city has, broadly speaking, two major aspects—physical and regulatory. As the stream of traffic swells and reaches the choking point, in a given section, means must be evolved for the affording of more adequate floor space, properly arranged. William Penn's plan of running his streets at right angles to each other, forming innumerable squares, had and still has, certain advantages, but with the development of the city to its present enormous proportions, this plan has developed manifest disadvantages from a traffic standpoint. It is the natural and economic thing for a traveler to go from one point to another by the most direct route. Hence we find in some of the better planned of the large cities, such as Washington and Paris, a great system of diagonal boulevards. The value of such a boulevard is shown by Philadelphia's spacious Parkway, running from City Hall, in the heart of the city, to the east drive of the Schuylkill River. Lancaster Avenue and Ridge Avenue and the great Roosevelt Boulevard are other illustrations of the value of diagonal thoroughfares. In some sections of the city it is still possible to carry through a system of diagonal highways, but this treatment will become more expensive as time goes by and will eventually become prohibitive.

An abnormal volume of traffic is carried by a few of Philadelphia's main highways. Walnut Street is the major carrier of east and west traffic, excepting east of the Schuylkill River, where it is a one way street and is relieved of east bound traffic by Chestnut Street. Broad Street, because of its great

width and length, bears the major north and south burden, running as it does from League Island to the Roosevelt Boulevard and beyond. There should be constructed east of Broad Street at some point west of the approach to the Delaware River Bridge, a parallel street of equal width, free of street railway lines, so that it may be devoted exclusively to motor vehicle and other vehicular traffic. The effect of this would be to relieve Broad Street of the great volume of traffic coming from a large portion of North Philadelphia, for points east of Broad Street in the business district. This traffic now uses Broad Street because of the inadequacy of the width and paving of the streets between it and the Delaware River. Another parallel street, without street car lines, should be constructed west of Broad Street, between it and the Schuylkill River. Walnut Street should be relieved by the widening of some parallel street to the south, and that street should be relieved of its burden of street car tracks.

ELIMINATING SURFACE CAR LINES

There can be no adequate solution of Philadelphia's downtown traffic difficulties so long as practically every street is occupied by street car lines. There are no surface lines in downtown London or Paris. In fact, there is very little mileage of surface cars anywhere within the limits of those great cities. Paris traffic, owing to its great diagonal boulevards and freedom from street car lines, to a large extent handles itself. Subway systems in both London and Paris, supplemented by adequately run bus lines and taxicabs, convey the traveling public in a satisfactory manner.

Surface railway cars in the business district of a great city constitute a great economic waste. Every inch of usable space on the downtown streets is of

high value. What a single street car line can do to that space is indicated by the condition of Chestnut Street, where the single track line occupies the center of this narrow one-way thoroughfare. When a street car stops for the purpose of taking on or discharging passengers, the center of the street is occupied by the car, the right side by the boarding and alighting passengers, and the left side alone can be occupied by vehicles, whereas there is room for three lanes of travel going in the same direction. If the car tracks were removed and auto bus lines instituted, the bus would stop, as it does in London, flush to the curb, unloading and loading its passengers directly from the sidewalk and still leaving two open lanes of travel, with complete safety to the bus users. With existing conditions, the street car today, the instant it stops, completely blocks at least two of the three lanes of travel.

HANDLING HEAVY AND EVER-INCREASING TRAFFIC

The problem of dealing with heavily traveled points, such as intersections or junctions of two or more streets, has been handled satisfactorily by the establishment of traffic circles around which the traffic can revolve. The most conspicuous traffic circle in the city is that on which City Hall is located and which receives the traffic from Broad Street, Market Street and the Parkway. A traffic circle, however, is only possible where there is space for a large circle. A new method of dealing with traffic at congested intersections, where it is necessary to make numerous right and left hand turns, has recently been suggested by Superintendent Mills. This plan contemplates the construction of a roadway across the corners in such a manner as to permit an uninterrupted flow of all traffic to the right. This "cut off" of

each of the four corners, without removing the actual point of the corner, can be employed at numerous points where it is not possible, because of lack of space, to create a traffic circle. A specific point at which Superintendent Mills has recommended the early construction of such a system of "cut offs" is the intersection of sixty-third Street and Market Street, where both right and left hand turns are made with great frequency by traffic coming from all four directions.

In the summer of 1926, the Delaware River Bridge, connecting Philadelphia and Camden, will be completed. The Philadelphia end of this is at Franklin Square, fifth and Vine Streets. It is reasonably certain that this bridge will be the means of drawing many motorists to the New Jersey shore resorts and will greatly increase the volume of intercity travel between Philadelphia and Camden, and its suburbs. In addition to the normal growth of travel between these two cities, there will be this much further tax on the capacity of this structure. There is nothing strange about this. It is a common occurrence for a public utility, which is greatly wanted, to be inadequate for the need it is designed to meet by the time it is ready for public use. The construction of another bridge further up the river has already been urged, in some location that will take away all the heavy travel bound for New Jersey destinations, from North Philadelphia and much from West Philadelphia, without the necessity of passing through the downtown congested area.

Philadelphia's main highways, leading to outside points, may be likened to the ribs of an open fan, with the Delaware River as the base. Some consideration has been given to the creation of belt lines, which will cross these radial highways in such a manner that they can be used by travelers de-

siring to avoid the central sections of the city. There is one such highway now designated by the words "belt line" on the telegraph poles, but neither its width nor its state of repair has been sufficient to excite any real interest or use. Circumferential highways connecting the radial highways, particularly just outside the city limits, are much needed. Study of this problem is now being made by a volunteer committee representing various civic organizations, including the Keystone Automobile Club.

Most of the major questions on the physical side of the city's traffic problem must be dealt with by the authorities in charge of city planning. In the future, as in the past, they will no doubt receive many constructive suggestions from the Department of Public Safety, in whose hands the practical problem of the daily control of traffic is entrusted.

II. REGULATORY ASPECTS

The regulation of traffic is an ever acute and changing problem in every large city. The great objective of regulatory measures is the greatest speed with the maximum safety. In Pennsylvania the rules of the road are established by a motor vehicle law, uniform in its effect throughout the state. This law prevents municipalities from passing any local regulations excepting with relation to stopping and parking, the establishment of zones in which vehicles may park at night without lights, the use of one-way streets, the regulation of the kind and weight of traffic on certain streets, and the establishment of safety zones. The city is likewise empowered to make special regulations as to the routes to be covered by vehicles transporting passengers. Even these regulations, if enacted into ordinances, are not effective until the municipality has posted adequate

notices or signs in the localities affected. The effect of this law is to give to the motorist, coming from any part of the state, adequate warning of special and local regulations, and to restrict those regulations within as narrow as possible a compass. The regulation of vehicular traffic other than that of motor vehicles is, in theory, under the control, exclusively, of council. Needless to say, it is necessary, by reason of the great preponderance of motor vehicle travel, for these regulations to be subordinated and conformed to the motor vehicle law.

TRAFFIC SIGNAL LIGHTS

The synchronized traffic system, extending over 17 blocks on North Broad Street, has proven thoroughly successful. Recent experiments with a "master light" in the tower of City Hall, around which Broad Street traffic revolves, did not measure up to expectations, because it did not adequately signal traffic proceeding away from City Hall and did not give ample warning to the users of intersecting streets.

A splendid improvement has been made in the installation and operation of the synchronized control of traffic lights in this city, by using a Warner time clock in connection with each light, instead of controlling the system by an underground cable, as in the past. A short time ago the use of these clocks was looked upon as an experiment. Today the authorities express the greatest satisfaction with their use. The effect on costs, both of installing and operating the synchronized system, has been very radical. The cable control plan involved an installation cost of from \$10,000 to \$15,000 per mile. It is now possible to install the system by using the Warner time clocks at an expense of from \$2,000 to \$3,500 per mile, the use of the clocks eliminating the necessity of laying cables.

Philadelphia has adopted the system

of traffic signal lights recommended by the International Police Conference and International Association of Chiefs of Police—red for "Stop," green for "Go," and yellow for "Prepare for Change," if an intermediate signal is given; or to be more accurate, this system of color signals, first in effect in Philadelphia, has been generally approved. The advantage of green as the signal to "go" is that it can never be confused with general street lights or commercial lights, which are nearly always yellow.

Simplicity and clearness, together with visibility both in daytime and at night, should be the aim of all traffic signs and lights. Under the Pennsylvania law there can be no conviction for the disregard of a legal traffic ordinance, where signs giving notice of the requirement—such as one-way streets, no parking, etc.—have not clearly shown their intentment. A common form of sign which means nothing, and the disregard of which cannot be properly penalized, is found in many localities bearing the words "No Parking" or "No Parking Here." What does such a sign mean? Does it mean no parking in front of the building in front of which the sign is placed? Does it mean no parking in that block or on that particular side of that street, or within a reasonable distance of the sign, or, if the last mentioned, what is a reasonable distance? Of course it is not necessary that a sign contain wording at great length, but it is essential that what it says shall be sufficiently clear to give to the stranger, as well as to the resident, adequate notice of what is required of him. A sign that means anything means nothing, if viewed from an enforceable standpoint. Adequate traffic signs are a great aid to traffic officers and tend to eliminate hesitancy, confusion and unnecessary stopping on the part of vehicle drivers.

Vivid signs can be made to convey a

meaning even to the unintelligent, as is illustrated by the experience in New Orleans, where, by reason of the large number of illiterates, signs of different shapes, such as stars, squares and triangles, of different colors, have each a definite and well known local meaning. It has been suggested by Superintendent Mills, in Philadelphia, that all traffic signs appear in the shape of arrows.

VARIOUS METHODS OF AIDING TRAFFIC

Most cities having wide thoroughfares such as Broad Street, Philadelphia, do not get the full value of the entire street width for traffic purposes. This is due to the failure of slowly moving vehicles to keep to the extreme right as the law requires, allowing the faster moving overtaking vehicles to occupy the left lanes of travel in the same direction. The enforcement of the rule of the road to "keep to the right" will give to cities possessing these wide thoroughfares, with several lanes of traffic in each direction, the full value of their floor space.

Left-hand turns are dealt with in Philadelphia, at any intersection where a traffic officer is on duty—excepting at certain points in the very heart of the city where left-hand turns are entirely prohibited—by the so-called "traffic turn control system," under which the driver stops to the extreme right of the street, within the limits of white lines painted on the streets, and awaits the signal of the traffic officer before making his turn.

The designation of one-way streets has been necessary in the downtown districts because of the numerous narrow streets occupied by surface street car lines. The policy has been to establish these streets only where there was a real necessity for them. These streets are designated by ordinance of Council on the recommendation of the Department of Public Safety.

Parking is by no means the least of a city's traffic problems. Every step in the direction of eliminating parking in congested districts evokes opposition for the time being. If an ideal city were to be planned by engineers today, in all probability there would be definite squares set aside in business localities for exclusive use as parking areas. It is undoubtedly a fact that thriving business districts away from the hearts of cities have been created and made successful largely by the fact that persons, desirous of doing their shopping by automobile, have found it impossible to park in downtown congested districts. The business section on Fifty-second Street, Philadelphia, is an illustration. The virtue of these small shopping centers is that, even though there may be a no-parking rule effective in front of the stores, side streets are usually available for parking purposes. It would seem that parking should not be prohibited unless the presence of parked vehicles impedes the speedy movement of travel.

Philadelphia's recent campaign against both glaring and inadequate headlights on automobiles has, it is believed, had much to do with the safety of night driving and walking, and this campaign, conducted jointly by the Department of Public Safety, under the direction of General S. D. Butler, director, and the Keystone Automobile Club, extended even beyond the city limits. It followed the declaration of the State Highway Department that the light equipment and adjustment laws would be enforced by the State Motorcycle Patrol. Eight hundred focusing screens were furnished to as many garages, designated by the Keystone Automobile Club, so that every motorist would have the opportunity to ascertain whether his lights were equipped with legal lenses and reflectors, and was given the opportunity of

having his lights properly focused—the bulb put in proper focal adjustment to the reflector—and the lamps properly tilted and aimed. The change effected by the enforcement of the headlight law has exceeded all expectations. Illuminating engineers and motor vehicle administrators who have visited Philadelphia recently have pronounced the experiment so satisfactory as to warrant similar efforts of enforcement elsewhere.

PHILADELPHIA'S CONTRIBUTION

Philadelphia has contributed, through its thorough student and administrator of traffic, Superintendent of Police William B. Mills, many important ideas with respect to the handling of traffic of a great modern city. Among these may be mentioned the use of the traffic semaphore for the first time in any city, the first official abolition of left hand turns at extremely congested intersections, the creation of the first no-parking areas and the establishment of the first one-way street. The latter statement may be qualified by stating that, while one-way streets have been in use since the days of Pompeii, and have been in use on streets of Philadelphia for the past fifty years as to certain very old streets less than twelve feet in width, the designation of Chestnut Street as a one-way street, marked for the first time the policy of any great city of setting aside one of its main downtown thoroughfares for the exclusive use of traffic proceeding in one direction.

Students of traffic are agreed that the human element plays a vital part in the successful handling of traffic. This is an aspect of the problem that has been specially stressed in this city, where courtesy and tact on the part of a traffic officer are held at a premium. Their attitude has its necessary reaction upon the drivers of vehicles.

The Traffic Problems in Detroit and How They Are Met

By T. GLENN PHILLIPS

Consultant, City Plan Commission, Detroit, Michigan

EVERY city of any importance has its traffic problems, due largely to the number of motor vehicles within its boundaries. The city of Detroit, however, occupies a position quite different, perhaps, than that of any other metropolitan center. This is caused by the manner in which it was laid out under the original city plan.

The first definite plan for the development of Detroit, prepared in 1807 and known as the Governor and Judges' Plan, proposed a series of important thoroughfares all leading to a central axis or circle. On that plan are found these remarks: "The streets that run north and south, east and west are all 200 feet broad; the other principal streets are 120 feet broad; the cross intermediate streets are 60 feet broad. . . ." A very small portion of the plan has been carried out and consequently the streets, to a great extent, are of insufficient width to carry the present traffic loads. After a lapse of over one hundred fifteen years, we are reverting to the street width of 120 feet for important thoroughfares, and 204 feet for super-highways.

Detroit is unique in its present street layout. The city is bounded on the south by the Detroit River and part of Lake St. Clair. Adjacent to the river and within a half mile circle is the city's business district. This is a hub, from which through streets radiate to the east, northeast, north, northwest, west and southwest, there being six such thoroughfares. These six thoroughfares bear a large per-

centage of the daily vehicular traffic and dump it into the one-half mile circle, or if the destination of this traffic is not the downtown area, it passes through that section of the city, destined for some other point, thereby adding to the congestion. It is now planned that a portion of the traffic, passing through the business district, going from one side of the city to the other, will be diverted to a cross-town thoroughfare which is being provided just north of the central district.

RELIEVING TRAFFIC CONGESTION

The first move made towards the relief of the traffic situation was the limiting of parking on certain streets, time limits being established for parked cars. This relief proved only temporary, because the increase in number of motor vehicles was so rapid that the advantage gained was quickly lost. Parking was then eliminated on one side of certain streets, and in some cases, on both sides of narrow streets. This, too, was merely temporary relief. Carrying the no-parking principal a step farther, an ordinance was enacted prohibiting the parking of any vehicle on certain through traffic or "stop" streets during the late afternoon and evening hours. On all streets in the central business district and on the important streets radiating therefrom, for a distance of several miles, no parking is allowed between 4.30 P. M. and 6.15 P. M. This plan has been of considerable value and is a real step towards the relief of the traffic situation, as it allows the mass traffic to

move from and through the center of the city during the rush hours of the day.

The City Plan Commission, together with other interested departments, in connection with its thoroughfare plan for the Metropolitan District, has prepared a traffic map of the downtown district, which shows the location of car tracks, street and pavement widths and density of traffic, that is, the number of vehicles passing a given point during certain hours of the day. Routes have been so planned upon this map that traffic which does not wish to come into the central business district may by-pass it. This plan will be placed in the hands of traffic directors at factories, trucking companies, etc., in order that the drivers may familiarize themselves with the best routes of travel around the business center.

A sure, if only temporary, way of aiding the present traffic situation is to provide wider pavements. The Department of Public Works has widened many thoroughfares, setting back the curbs and taking from the sidewalks or grass plots sufficient space to provide for one or two additional lines of traffic. Pavement widenings were started on a rather small scale because of limited finances, but the relief from congestion on the widened pavements was so noticeable that citizens clamored for further widenings, with the result that a definite plan has been worked out by the City Plan Commission and other departments, which will be followed for several years.

On all streets that are widened and in some instances where pavement widening has not been undertaken, the Department of Public Works has been increasing the turning radius at corners, thereby enabling motor vehicles to turn corners with greater

ease. Most streets and intersections were designed for the horse-drawn vehicle age and not in such a manner as to allow vehicles with long wheel bases to turn with ease. Though the work may seem trifling, the increase of radii at corners has had a decided effect in expediting the movement of traffic.

Another step towards the relief of the traffic situation was the passage, about a year ago, of an ordinance requiring all vehicles to come to a complete stop when entering or crossing certain streets. There are twelve streets included in the ordinance and each carries thousands of motor vehicles and street cars daily. The city authorities found, after a few weeks, that traffic accidents were greatly reduced and the movement of vehicular traffic to and from the center of the city was expedited. The "stop" street ordinance is a measure that Detroit officials commend to every other city that has not yet adopted the plan.

Detroit has the same enforcement problem that other cities have in carrying out its traffic regulations. A sufficient number of traffic officers have been placed on duty to impress violators that the law must be observed.

A new plan has recently been inaugurated to handle traffic cases. The violation of the ordinance results in a card being placed upon the car. The driver is given 48 hours in which to report with the card at the Violation Bureau of the Police Department. If he fails to do so, a court summons is issued and he is taken before a judge for trial. In the cases of those who report to the Violation Bureau, the first fine for improper parking is \$1, the second \$3, and the charge thereafter is \$5 for each violation. The driver need not pay this fine if he feels that the ordinance has not been

violated, his option being to appear in Traffic Court for trial. As the court procedure is slow and takes the greater part of a day, ordinarily, most drivers very willingly deposit their "bond" with the Violation Bureau, which is forfeited by his non-appearance at a later date.

AVOIDING "SATURATION POINT"

Detroit covers an area of approximately 85 square miles. That it has a traffic problem is emphasized when one studies motor vehicle registration figures for the city. Records of the Secretary of State show that on September 1st, 1924, there was a total registration of 242,322 motor vehicles, exclusive of dealer, trailer and other miscellaneous licenses, this total being only for passenger cars and commercial vehicles. The passenger car registration was 221,312 and the motor truck 21,010. This is an average of more than 2,850 motor vehicles to the square mile.

It is not known just when the so-called "saturation point" will be reached in Detroit, but many students of the traffic problem believe it is not far distant because of the fact that available street space for the movement of traffic, especially on the through traffic streets, is rapidly being taken up. Naturally, when no more vehicles can be jammed into the streets, or when so many have been put on the thoroughfares that they interfere with one another's movement, the mythical "saturation point" will have been reached. Some motor vehicle enthusiasts say that this will never happen.

To illustrate how rapidly the registration is being increased and the available street space is being taken up, one need go back only sixty days to the records of the Secretary of State. The figures quoted above for September 1 are considerably higher than those reported for the first day of July, 1924. On that date, the total registration for Detroit was 228,694, of which 208,785 were passenger cars and 19,909 commercial vehicles. The increase in two months was therefore 13,628 or at the rate of more than 80,000 per year.

Detroit's traffic problem has not yet been solved. Although parking has been eliminated in the down-town section of the city, master towers placed on principal streets and at important intersections, automatic signals installed and pavements widened, the increase of traffic is so great that we still have congestion.

The foremost step toward the solution of the problem has been the preparation of a comprehensive thoroughfare plan for the city and its environs. Streets 120 feet in width have been planned, running north and south and east and west, at intervals of about a half mile. These will connect with super-highways 204 feet wide, radiating from the city. The City Plan Commission insists that all mile streets be made 106 feet in width and all half mile streets 86 feet in width. This may not be the solution of the present traffic problem, but at least it will be a step in advance, planning for the future.

Reduction of Street Traffic Congestion by Proper Street Design

How St. Louis Is Meeting Its Problem

BY HARLAND BARTHOLOMEW

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POOR street design is the underlying cause of street traffic congestion. Traffic regulation and safety education, while important and necessary, can never constitute a solution of this universal problem. The automobile has given new significance to the city's street structure. The narrow, ill-arranged streets of most cities are not adapted to the needs of modern traffic.

St. Louis had approximately 16,000 motor vehicles registered in 1916. The 1923 registration exceeded 100,000 motor vehicles and this figure will be increased to 200,000 by 1928. Traffic counts show an annual increase of 25 per cent in vehicle movements upon the city's streets. Something more than traffic regulation is needed. Freedom of traffic circulation is a commercial necessity.

In 1916 St. Louis possessed 940 miles of streets. Three-fourths of this street mileage was of 60-foot width. The other fourth, of varying greater width, was so unsystematically distributed as to be more or less useless in any city-wide scheme of traffic circulation.

INTRODUCING A MAJOR STREET PLAN

As one element of a comprehensive city plan, there was devised in 1917 a major street plan of wide, direct and continuous thoroughfares, serving all parts of the city. Leading from the business district, radiating thoroughfares were projected north, south and west. Supplementing the radial streets were crosstown thoroughfares

of a north-south and east-west direction, spaced approximately one-half mile or less apart. Widths of 80 and 100 feet were proposed on most major streets. Where wide streets existed they were incorporated in the scheme if satisfactorily located. Widenings, extensions and openings were proposed where satisfactory streets did not exist.

The plan represented an estimated total expenditure of \$40,000,000 for property damage. Some projects were vastly more expensive than others because of the necessity of removal or demolition of buildings. In some cases no expense was involved, particularly at the outskirts of the city, where property owners voluntarily dedicated the necessary right of way. The plan has met with much public favor and is now in a fair way toward ultimate realization, as may be seen by the following table:

	<i>Miles</i>
Major streets of satisfactory width	150
Major streets widened or extended to date	8
Major streets to be widened or extended and in various stages of completion	58
Major streets to be widened or extended and for which no action yet taken	38
Total	249

The total of 249 miles of major streets represents about 25 per cent of the total street mileage of the city. Projects completed, paved and opened for traffic to date have materially reduced street traffic congestion. Projects yet to be completed will greatly

improve circulation facilities and will satisfy most future needs.

The scheme was first proposed as a practical ideal toward which the city might gradually adjust itself. Its high cost seemed to be a formidable obstacle. In 1917 it was considered as planning of the boldest sort, if not extravagant. Within seven years it has been accepted as the official city plan, property owners on street after street having petitioned for early completion of individual projects.

A city bond issue of \$11,150,000 was voted in 1923 to pay the city's share of the cost of the plan. It is now estimated the total cost will not exceed \$30,000,000, approximately two-thirds of which will be paid by direct assessment of benefits. Not the least interesting result of the work done to date has been the accompanying increase of property values on streets newly widened or opened, often exceeding considerably and immediately the assessments levied for benefit.

RESULTS

The gradual execution of this plan has numerous ramifying advantages. Upon the major streets are laid the heaviest traffic pavements. This facilitates circulation throughout the city, reduces congestion at strategic points and keeps traffic out of minor residence streets. Special types of street lighting have been designed and are being installed upon these major streets. Special traffic regulations, such as the boulevard stop, are enforced on major streets. All of which is tending to promote order, facilitate movement, improve values and promote public safety.

Few widenings were attempted in the central business district. Market Street, the southern boundary of the business district, is being widened to 100 feet throughout the business dis-

trict and for a distance of three miles beyond. Morgan Street and Franklin Avenue, two thoroughfares immediately north of the business district, are being widened for considerable distances to permit of expansion of the business district and improved approach thereto.

The basic idea of the whole plan is distribution rather than concentration of traffic. This idea is being realized and, fortunately, without disturbance to existing conditions or established values.

Another advantage of the plan, already realized, is the opportunity for re-routing of transit lines to permit of more direct and freer movements upon the widened streets. The local transit company has been quick to seize the opportunity thus offered for improved service, and in one instance traveling time by trolley to the southwestern part of the city has been reduced approximately 15 minutes. This means much in the daily life of a great city.

Execution of this large program has not been accomplished without many difficulties, not all of which have been satisfactorily met. In many respects the city's legal authority has been most satisfactory, better than the average, perhaps, but there have been numerous delays from various causes, some mistakes in distribution of benefit assessments and other difficulties of minor importance.

Generally speaking, the plan is even more popular now than ever, has justified its expense, and, most important of all, has offered a genuine solution of the traffic congestion problem. What was considered unusually bold design in 1917, measured by conditions of today, is no more than sufficient, and ten years hence will probably be regarded as modest, if not niggardly. Daniel Burnham's prophetic advice to "make no little plans" was never more aptly illustrated.

There is no perfect solution of the traffic congestion problem in growing cities, at least for the present, since no one can say where and when motor ownership and use will reach the saturation point. The experience of St. Louis, however, teaches us that the approach to its solution is in the design

of the city's entire street structure and not in mere traffic regulation.

Good street design not merely facilitates solution of the street traffic congestion problem; it promotes more uniform and substantial city growth, and finds its ultimate reflection in the general prosperity of the community.

The Traffic Commission of Los Angeles

Its Work on the Traffic Problem

By PAUL G. HOFFMAN

The Traffic Commission of The City and County of Los Angeles

THE climate of Los Angeles is a subject of much enthusiasm on the part of its citizens, although the insistence with which it is brought into discussions affords some levity to those who are not yet residents. In a consideration of the local traffic situation it cannot be ignored. Undoubtedly the salubrious climate has contributed greatly to the local problem.

When it is considered that here exists the largest percentage of automobile ownership in the world—one automobile for each two and nine tenths (2.9) persons, a total of 430,000 cars in Los Angeles city in 1923, and that a uniformly mild climate encourages the use of cars every day in the year—it is small wonder that there is an ever increasing demand for better street facilities. It is difficult to surmise what the total passenger movement by motor car may be in Los Angeles City alone. Counted in the same way as trip fares on street railroads it is probably in excess of 2,000,000 daily.

Added to this the usual elements which create street congestion exist in Los Angeles in an especially marked degree. Rapid growth of a city is one—the growth here has been phenom-

enal, the population almost doubling between 1920 and the present time. Here as elsewhere, the unscientific width and arrangement of streets, the improper use of existing space, the promiscuous mixing of various types of traffic all aggravate the problem.

Recognizing the value of co-ordinating action for relief, the individuals, groups, civic organizations, and others interested in and affected by traffic conditions met in 1922 and organized the Los Angeles Traffic Commission. It was, in the beginning, a body of volunteers and entirely unofficial in character. A technical and office staff has since been added, but its unofficial status has been retained. The Commission is controlled by its membership acting through a board of fifty directors, who in turn delegate certain of their responsibilities to an executive committee of nine. Every effort is made to keep both the directorate and executive committee so representative in character that a true cross section of opinion can be obtained. As an example: At the present time on the executive committee the merchants are represented by the executive secretary of the Retail Dry Goods Association, the

street railroads by the operating heads of the two lines, the taxicab interests by the owner of the largest cab service, the motor car interests by the general counsel of the Automobile Club and one distributor, and the general public by two members selected because of their standing and freedom from affiliation with any particular group. The Commission is financed by voluntary contributions.

RELIEF PROGRAM

In forwarding its program of relief, the Commission has functioned in five fields: Regulation, street maintenance, street development, public transportation and educational publicity. It was early recognized that many of the difficulties affecting traffic resulted from a paucity of information on which to base intelligent action. The measures of relief which had been proposed were generally founded on unsubstantiated opinions. It has been the policy of the Commission, before making any recommendation in any field, to obtain the services of the best experts in America and through their investigation to develop the facts and data necessary.

Regulation. A special regulations committee has supervised the work in the field of regulation. They early impressed upon the Commission the wisdom and economy of securing maximum use of existing street space through better regulation of traffic. The "Boulevard Stop" was advocated and now five of our principal thoroughfares are so designated. Restrictive center button markers on three way or dead-end streets have been replaced by three markers located on the property lines and a much freer flow of traffic at such intersections has resulted. An extensive experiment with various types of signals has resulted in a recommendation to the city favoring the center type of electric flash signal as being

simplest and least costly, both as to installation and maintenance. On recommendation of this committee the City Council enacted during the last Christmas season a temporary ordinance prohibiting parking from 7 to 10 A. M. As there was already a prohibition from 4 to 6.15 P. M., facility of movement was provided during the peak traffic hours. Results were so generally regarded as beneficial that the council is now considering the passage of a regular ordinance with similar restrictions.

In July of 1924, Dr. Miller McClinck of Harvard University was employed by the Traffic Commission on recommendation of its regulations committee to draft an entirely new traffic code to replace the collection of ordinances now in effect. One portion of his work, that in reference to protection of school children, has already been enacted into an ordinance replacing the thoroughly ineffective and annoying school stop ordinance which had previously governed. The balance of the proposed traffic code will be presented to the council within a short period of time.

NEW SCHOOL CROSSING ORDINANCE NOW IN EFFECT

Obey these simple laws:

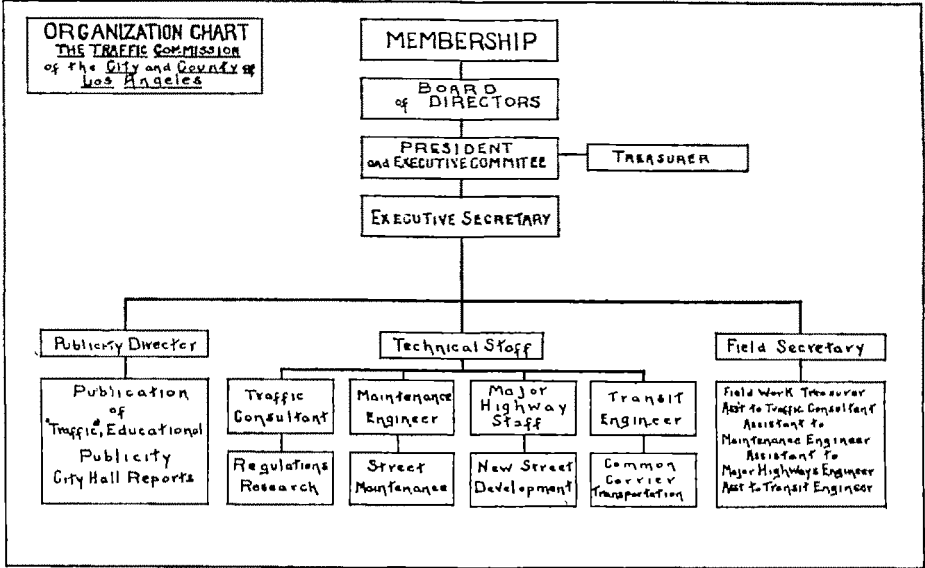
(1) Do not drive in excess of *Fifteen miles per hour* by schools when children are entering or leaving.

(2) Do not drive into school crosswalks marked with yellow paint when there are pedestrians in the crosswalk on the right half of the roadway. Under such conditions you must *stop and wait* until the crosswalk ahead of you is clear. When no pedestrians are in the crosswalk you need not stop, but may *proceed with caution*.

(3) Co-operate with the Police Department in making the streets safe for both motorists and pedestrians.

Courtesy

LOS ANGELES TRAFFIC COMMISSION.



Another phase of the work of the regulations committee has been its effort in the field of enforcement. It has assisted authorities in bringing about a *courteous* enforcement of the law. It has fought vigorously the idea of enforcement for *the sake of revenue* and has advocated education rather than arrest in the case of all but wilful violators.

Street Maintenance. The important relation of properly conditioned street surfaces to congestion is but dimly recognized in most American cities. Los Angeles in common with the rest has suffered from dilatory methods in making street excavations as well as in repairing broken surfaces.

The Traffic Commission is insistently voicing the idea that a main traffic artery is an integral part of a most vital transportation system, and should be treated as such. It contends that maintenance and repairs should be marked by the diligence which characterizes such work on the main line of a railroad. In pursuance of this policy the Commission has assisted in the passage of an ordinance requiring two

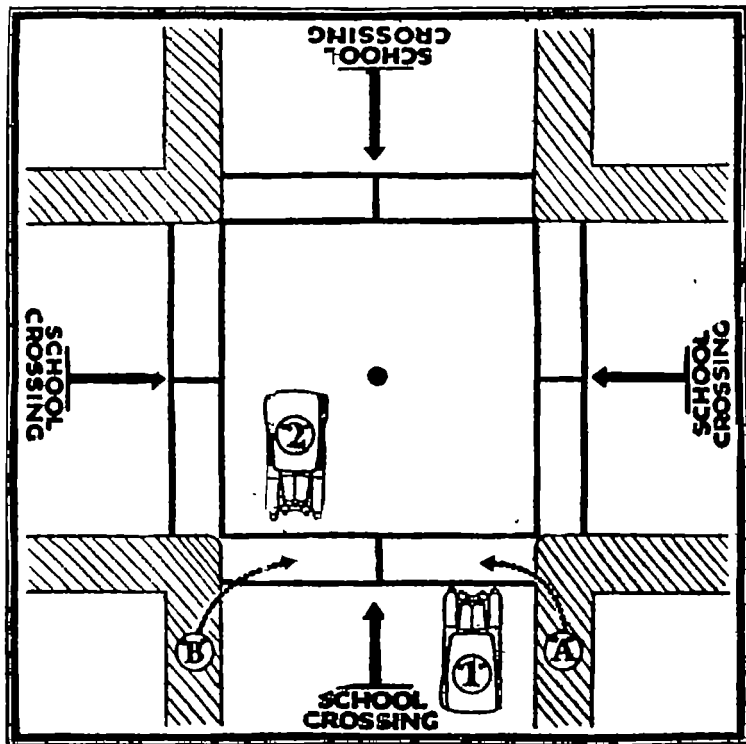
shifts on all street work in the congested areas: in obtaining county help for street maintenance on main thoroughfares in the city to the extent of \$400,000 annually; and recently in the allocation of an additional \$1,000,000 for street repairs from the general funds of the city for the period from July 1, 1924, to July 1, 1925.

Street Development. As has been pointed out, both good judgment and expediency dictated strenuous activities in the matter of regulation and street maintenance in order that capacity use of existing streets might be secured. At the same time the most casual study of the street layout in Los Angeles made obvious the wisdom of developing a well balanced system of traffic arteries through opening and widening the necessary links. Chicago, Pittsburg and St. Louis afford illuminating examples of the beneficent results which followed actual construction under a properly executed plan.

Pursuant to the policy of the Traffic Commission, negotiations were undertaken with experts in street planning,

and Messrs. Harlan Bartholmew, Frederick Law Olmsted and Charles H. Cheney were employed in December of 1923 to draft a major street plan for Los Angeles. This plan was completed and presented to the city July 26, 1924. It is thoroughly comprehensive in its character, and calls for eventual ex-

penditure of hundreds of millions of dollars. Unquestionably the carrying out of even a limited number of the projects will result in doubling the traffic capacity of certain areas of the city. A program committee consisting of the high officials of the city government and the heads of the leading civic



MOTORISTS MUST HEED NEW SCHOOL STOP REGULATIONS

The board of police commissioners is hereby authorized and directed to place and maintain crosswalks at the intersections of streets in the vicinity of public schools within the city of Los Angeles, at which, in the opinion of said board of police commissioners the travel of traffic is sufficiently heavy to render dangerous the crossings of the intersection by school children.

The crosswalks shall be indicated and maintained by two lines of yellow paint upon the pavement approximately fifteen feet apart. Said board of police commissioners is further authorized and directed to place and maintain with yellow paint the words "school crossing," together with an arrow pointing in the direction of the above-mentioned crosswalks, said words and arrow to be painted upon the pavement 100 feet from each crosswalk.

Within such crosswalks pedestrians engaged in crossing the street shall have the right of way over all traffic, provided, however, that when traffic at the intersection is directed by a police officer or by a signalling device, pedestrians shall be subject to the same directions as govern the movement of vehicles.

It shall be unlawful for any person driving any vehicle, animal, street car, interurban car or train of cars, to drive into any of the above-mentioned crosswalks when there is present in said crosswalk a pedestrian upon the right half of the roadway, engaged in crossing said street.

organizations is now engaged in selecting a primary program of projects from this plan.

Public Transportation. While Messrs. Bartholomew, Olmsted and Cheney were engaged in a study of highway problems, the Traffic Commission had recommended to the city the employment of experts to make a similar study of transit facilities. The firm of Kelker and DeLeuw of Chicago were retained and expect to make their report to the city within a short period of time.

Educational Publicity. The whole subject of street traffic in its modern aspects is so new and so little understood by the general public that it is absolutely essential that every item in a program of relief be thoroughly explained in order that opposition may be forestalled. Change is inevitably met by suspicion which can be dispelled only by frank and full publicity. The newspapers, metropolitan and neighborhood, the theatres, billboards and hand bills have been used by the publicity director of the Commission in various campaigns where public support was needed. When the new city charter was under consideration the aid of the Boy Scouts was enlisted and tens of thousands of pieces of educational literature were distributed to the voters.

The Commission has been fortunate in that the publishers of the most important papers have been deeply interested in the work being done, and have been generous in their allotment of space. It is the purpose to shortly embark upon the publication of a magazine, *Traffic*, which will be circulated among the influential groups in the city.

SUMMARY

The success of any civic organization is measured by its usefulness to the community. Whatsoever accomplishments have been achieved by the Traffic Commission in Los Angeles have resulted first, from the deep interest of its members in the subject, and, secondly, from the fact that its board of directors is representative of all groups vitally affected by traffic. Here railroad men, merchants, automobile men, city planners and city officials meet and adjust view points quite often of wide divergence and agree to support a unified program. The inevitable discouragements incident to any civic undertaking have only served to strengthen the determination of the directors to stick closely to the job of getting the facts in the many phases of the traffic problem and act intelligently on these facts when secured.

The Export Trade in Automobiles

By H. H. KELLY

Acting Chief, Automotive Division, U. S. Department of Commerce

THE romance of American business holds no more interesting chapter than that which deals with the rise of the automobile industry. And that industry has no more interesting or significant phase than its export trade.

Two sets of figures furnish the background for a discussion of foreign trade in automotive products. Both refer to 1923. There were in operation in the world that year 18,000,000 passenger cars and motor trucks; 15,000,000 of this number were in the United States. The world production of these vehicles in the same year was about 4,500,000; America produced 4,087,000 of them, and 107,000 more, if American cars and trucks assembled in foreign countries are counted. These are the brief statistics which show America's position in the automotive business of the world—83.4 per cent of all vehicles in operation, and 93.2 per cent of the annual world production.

Nineteen twenty-five will be the jubilee year of the industry in the United States. After less than a quarter century, the American automobile dominates the world. But twenty-five years are not a day; and the growth of the American automotive industry during that time has been logical and sound. The concentrated force of twenty-five years of successful effort is now behind it, pushing it outward into new fields and new markets—in a word, into export trade.

RAPID GROWTH OF EXPORT TRADE

No one knows just how large or how small, were the foundations of this

towering structure. In 1895, perhaps 300 vehicles were produced in America; by 1900, the number may have been 5,000. Export trade was hardly thought of. For the first and last time, imports probably equalled exports, although the numbers were so negligible as to have left no impression upon the records. It was not until 1910 that either production or exports really began to merit attention, but in that year, 187,000 cars and trucks were built and 8,500 were shipped abroad—about 4.5 per cent. The proportion at present is 6 per cent, exports having more than kept pace with the tremendous growth of the industry.

From 1910 onward, production of cars and trucks grew by leaps and bounds; each year set a new record, only to be eclipsed by the next. The increase in production from 209,000 in 1911 to 4,087,000 in 1923 summarizes the amazing story.

After 1910, the exports grew in like measure—from 15,800 in 1911 to 221,816 in 1923.

The dollar-value of the industry and its exports in the single year of 1923 ran into enormous totals. The wholesale value of all motor vehicles and parts, including tires, produced that year was estimated at \$2,800,000,000. The retail value was at least 25 per cent more, or \$3,500,000,000. The value of the exports was placed at \$170,000,000 for the United States, and \$37,000,000 for Canada. The magnitude of these figures is best seen in the fact that the United States shipments of automotive products stood third among all commodities exported, being exceeded only

by unmanufactured cotton and refined mineral oils. Canadian exports, moreover, should be added to those from the United States, for they come from branch factories of companies organized in the United States, placed there to take advantage of tariff preferentials in the British Empire.

In comparative value of items, passenger cars form by far the largest portion of the exports; after them come trucks, then motorcycles, accessories, parts for assembly and replacement, and engines.

One of the most interesting features in all this notable development is the increase in the number of cars and trucks assembled abroad. The products of some of these foreign-assembly plants, as they are known in the industry, may be only partially American, although they are built by subsidiaries of American companies and under American patents; they may use local materials in large measure, and they do, of course, employ workmen of the country in which they are located. One such plant in England advertises that 80 per cent of its product is British-made. In practically all these assembly plants, however, the engine, the heart of the car, is a "Made in U. S. A." product. Last year, foreign assembly plants turned out a total of 107,000 cars and trucks. One American company now has twelve such plants in operation in various foreign countries. As foreign markets improve this phase of the industry may be expected to take on an ever greater importance.

FOREIGN MARKETS

Leading national markets for our automotive products are a kaleidoscope of changing conditions. They differ according to the specific products which they prefer, and they move up and down in their positions from month to

month. Sometimes their rise and fall can be assigned to certain known causes; at other times, their movements are apparently without reason at all. None the less, every export manager watches their fluctuations with keen interest and checks his foreign sales force accordingly.

Australia is by far the best market for American passenger cars. Last year, 25,817 cars, valued at \$20,000,000, were shipped to that market, and in the first six months of this year the shipments almost equalled those of all twelve in 1923. Many an Australian industry owes its origin and development to this growing flood of American vehicles. Builders of bodies for both cars and trucks, for instance, have found a prosperous business in equipping chasses, and they have been protected by an Australian tariff which imposes a high duty upon imported bodies. Tire-makers, too, and manufacturers of accessories and parts, base their operations upon the imports of American vehicles. Despite all this manufacturing activity, it is curious to note that no successful all-Australian car has yet made its appearance.

After Australia in the table of national markets come Canada, the United Kingdom, Mexico, Sweden, Argentina, Spain, Cuba, and so on down a long list, with not a single country in the world, large or small, failing to receive some of our passenger cars.

For trucks, the demand is not the same. Japan led in 1923, and still is in first place so far in 1924, largely by reason of large purchases following the earthquake. Exports of trucks to the Sunrise Kingdom last year numbered 5,111, valued wholesale at \$1,570,000. Second in the truck list stood Belgium, and then followed Australia, Sweden, Canada, Spain, the United Kingdom, and a list of others as long as that of the passenger car markets.

The sudden rise to prominence of Japan as a buyer of American motor trucks is an example of the unexpected in export trade. In 1922, Japan bought only 1,001 trucks and busses. Following close upon the heels of the earthquake in September of 1923, which laid to the ground two of Japan's chief cities, came the first rush orders for trucks. Rail communication, both steam and trolley, was completely disorganized, and the island kingdom found emergency measures necessary to transport goods and passengers in the devastated areas. The trucks came—1,800 in a single month—mostly from America. Bus routes appeared, with passengers jolting uncomfortably in hastily-built bodies mounted on ordinary truck chasses; freight-lines of motor vehicles took the place of the railroads; taxi-lines boomed. Japan was motorized in a month, and a new and modern means of transportation was literally forced upon the country by its own dire need. The effects of that impetus to motor-transport in Japan will never be entirely lost.

UNFORESEEN PROBLEMS AND EMERGENCIES

Peculiar and abnormal conditions still exist in many countries as a result of the war. There is Germany, whose automotive trade and industry have been as hard hit in recent years as any other part of her economic structure. Since August, 1914, Germany has practically been off the list of buyers. During the war, the uncertainties of maritime commerce cut down her imports to a minimum; after the war, she herself refused to permit the importation of many products, among them automobiles, and her decision was enhanced by her inability to make payment. Today Germany is operating under an import-license system, which limits imports to cars for demonstra-

tion purposes or for the use of diplomatic officers and travelers. Recent flurries have been created by rumors of the removal of these restrictions, by the evacuation of the Ruhr by France and the changing of customs barriers, and other occurrences; but to date the import-license system remains unaltered, and apparently will remain so for some months to come, at least. If the licenses are abandoned, the German automotive industry, which before the war was growing rapidly, will in all likelihood receive protection behind a high tariff wall.

Export managers in the automobile business find few dull days, for the greater the number of foreign countries in which they place their goods, the greater the chance that each morning will put before them some new and unforeseen problem. Thus, within recent months the King of Spain signed a decree requiring all automobile tires and tubes entering Spain to be stamped with a serial number—this to check the smuggling of tires, which was reported mounting to large proportions. Not only was the number to be stamped on the tire and tube, but it was to be recorded on the invoice accompanying the shipment as well. The difficulties attending this order are manifest; yet American exporters met its requirements and continued shipping tires to Spain.

On another day, more recently, cables brought the news that Portugal had stopped, without warning, all imports of motor vehicles weighing less than 6,600 pounds, excepting only those already in transit. Since few vehicles weigh more than 6,600 pounds, this effectually put a stop to all imports for a time. Portuguese authorities explained that the order was issued in the belief that the curtailment of foreign purchases would tend to improve the financial condition of Portu-

gal. Early in October these severe restrictions were lightened, and admission of vehicles weighing up to 3,300 pounds was authorized.

WHY AMERICA UNDERSELLS

Manufacturing is in a high stage of development in many other countries besides the United States. Why is it that they are not able to supply their own automotive needs? Why is it that America can ship a car to a foreign country, with all the attendant expenses of land and ocean freight and tariff charges, and still undersell the foreign manufacturer in his own territory? The explanation lies in the enormous size of the domestic market which supports the American automotive industry. For that market, which

is now assimilating 94 per cent of our total output, has permitted the evolution of "mass-production" methods and thus has made possible low prices for our cars and trucks which foreign makers have never been able to equal.

Beyond question, foreign markets for American motor cars and trucks will loom larger and larger as the years go on. Today America is exporting 6 per cent of its automotive production. In the tomorrow of the coming years, no man can predict how high this figure will go. Certain it is that it will move steadily upward as the domestic market stabilizes and foreign fields continue the development which already has placed America in an unapproachable position of world leadership in motor transport.

The Relation of the Automobile Industry to International Problems of Oil and Rubber

By HARRY T. COLLINGS

Professor of Economics, University of Pennsylvania

THE automobile industry was first shown as a separate business in our census of 1904. Twenty-five years ago there were in this country only 3,700 vehicles propelled by gasoline. The table below shows the growth of the industry up to the beginning of the war.

Our Government statistics show that in 1923 exports of passenger cars from the United States numbered 127,035,

valued at \$90,692,272; and of trucks, 24,861 valued at \$15,318,058. The total value was \$106,010,330. To this should be added the exports from Canada—57,481 passenger cars valued at \$29,325,031; and 12,439 trucks valued at \$4,503,659, making a grand total, therefore, of 221,816 passenger cars and trucks, valued at \$139,839,020. The automobile industry, then, constitutes one of the most im-

GROWTH OF THE AUTOMOBILE INDUSTRY (INCLUDING BODIES AND PARTS)

YEAR	NUMBER OF ESTABLISHMENTS	CAPITAL (THOUSANDS)	WAGE EARNERS	VALUE OF THE PRODUCT (THOUSANDS)
1899	57	\$5,769	2,241	\$4,748
1904	178	23,054	12,049	30,034
1909	743	173,837	75,721	249,202
1914	1,271	407,730	127,092	632,881

portant branches of our present-day industrial life. But in the consideration of its importance we must by no means confine our thinking to the manufacture of automobiles. The petroleum and rubber industries as well have grown to a magnitude which ranks them high among our industrial enterprises. This position they occupy chiefly because of their relation to the automobile. Tires, tubes and motive power for the automobile are responsible for the commercial importance of the oil and rubber industries.

It is the purpose of this paper to point out the influence which the automobile has exerted on these enterprises, and more particularly to indicate the international problems which have consequently arisen in connection with their development in recent years. Without pneumatic tires and gasoline the automobile is merely a steel skeleton, as dead as the chariot of Pharaoh. The cushion tire means speed and luxury; the gasoline engine revolutionizes locomotion and converts a "horseless carriage" into a limousine.

OIL—SUPPLY AND DEMAND

In the sixty-five years since Edwin L. Drake struck oil near Titusville, Pennsylvania, the petroleum industry has grown to be one of the most important in national and international trade. That this is not solely due to the automobile is obvious; crude or semi-refined oil is used extensively as a fuel by locomotives and steamships, and in a more limited way as a lubricant. Its principal use, however, is in the form of refined products, of which gasoline is the most important, and this is consumed chiefly by the automobile and motor truck. The importance of the automobile in the development of the petroleum industry, therefore, is apparent; a consideration of their relation deserves attention.

The United States Geological Survey estimated in 1921 that we had used up five billion barrels of our original supply of fourteen billions, so that less than two-thirds of our original resources were left. The world outside the United States was then thought to have some fifty-six billion barrels or over 90 per cent of its original resources. As the United States was producing three-fifths or more of the total annual output of oil, each year placed the country in a relatively worse position. Not only was the increasing number of automobiles and trucks continually demanding more gasoline, but a larger proportion of each year's supply was being refined for the production of gasoline. In the early years of the refining industry 10 to 13 per cent of the petroleum refined was converted into gasoline; by 1914 this percentage had increased to 18, and in 1921 over 28 per cent of the crude oil distilled was used in this way. Doubtless more than one-third of the petroleum products this year (1924) will be in the form of gasoline. With a production of 2,287,412 passenger cars alone during the past eight months, there can be little doubt that the automobile is a controlling factor in our petroleum industry.

No raw material since 1914 has been the cause for more international complications than has oil. This has not been due solely to its use by automobiles, but this has had an intimate connection with the problem. In times of war, nations need crude oil for their navies and gasoline for their airplanes; and the movement of troops, of ammunition, and other supplies is carried largely by the use of motors. In times of peace, the consumption of such vast quantities of gasoline by automobiles renders difficult the storing of an adequate supply for war needs. Hence the struggle for oil. So the automobile in peace or war bears no small part in

international oil problems, and these have bulked large in diplomacy since 1914.

THE STRUGGLE FOR OIL

Did not the British Government in 1919 make clear that it had "floated to victory on a wave of oil," and that this kind of wave must in future be ruled by Britannia? And did not the British Cabinet at that same time decide that vast stocks of oil must be provided both at home and abroad at naval coaling stations? Since crude oil and gasoline have become the "soul of modern warfare," the world's oil resources have been carefully studied with a view to the control of adequate supplies against a time of strife. A committee of the British Government had been appointed late in 1918, with the ominous title "Petroleum Imperial Policy Committee," whose admitted task was to find and control in various quarters of the globe the precious oil supply. Arrangements were made with the Royal Dutch-Shell, Anglo Persian, and other oil companies, as a result of which Mr. Pretymann, at the laying of the corner stone of the Anglo Persian Oil Company Refinery on May 7, 1919, could say: "When adjustments are completed the British Empire will not be very far from controlling one-half of the available supply of petroleum in the world." On April 24, 1920, came the San Remo Oil Agreement, which because of misunderstandings in both France and the United States led to international complications.

Nor were our efforts to obtain adequate oil supplies for the United States less strenuous. The press called our attention to the fact that the millions of vehicles propelled by gasoline were rapidly exhausting our available supplies of oil; that we were using gasoline faster than we produced it, thus making inroads into our reserve stock. We

were bidden to stop the export of such vast quantities of oil each year in order to conserve the home supply. The press was insistent that we secure control of adequate foreign sources. Then came our efforts to develop with American capital oil fields in Venezuela, Colombia and Peru.

Mexico had long been in the public mind in relation to world oil problems. There were not wanting those who maintained that the difficulty in the recognition of the Mexican Government under President Obregón was in deference to the oil interests of the United States. This was far from true, but it cannot be denied that oil interests were involved in the problem. There was a real and defensible basis for the refusal of Secretary Hughes to recognize the Obregón government previous to August, 1923. It must, however, be admitted that without vast oil fields in Mexico there would have been no investment of \$200,000,000 of American capital, and without this investment the arrangements for the ownership of subsoil properties, made in Article XXVII of the Mexican Constitution of 1917, would not have concerned us. But our need for oil and our investment in Mexico made us at once an interested party, when that Constitution declared that the ownership of all minerals or substances found in the subsoil is vested in the Nation, —especially when the Mexican Government proceeded to assume this ownership without compensating those who had previously held full title to these properties. Oil was then the vital question between the United States and Mexico from 1917 to 1923.

THE SEARCH FOR RUBBER

If the automobile is of importance to the petroleum industry, it is infinitely more so in connection with the rubber industry. The United States

consumes two-thirds of the world's rubber annually but, except for a small supply coming from the Philippines, we produce none. We are therefore dependent on foreign sources for our crude rubber. Automobile tires and tubes consume at times over four-fifths of all crude rubber used in the United States; thus the automobile introduces us to international rubber problems. Reference to the following table shows that an abundant supply of crude rubber is an increasing necessity, if we continue to supply our automobile needs.

PRODUCTION OF AUTOMOBILE CASINGS AND TUBES IN THE UNITED STATES

YEAR	AUTO CASINGS	INNER TUBES
1914.	8,021,871	7,907,351
1919.	32,835,509	33,255,410
1921.	27,297,919	32,082,002
1923.	45,332,747	56,933,646

Previous to the year 1906 more than 99 per cent of the raw rubber of the world came from Brazil. Since 1921 less than 10 per cent has come from that country. This change from the wild rubber of Brazil to the plantation rubber, cultivated chiefly in the Federated Malay States, Sumatra, Borneo and Java, has brought with it international problems of great import. Rubber and coffee are the two commodities on which the economic welfare of Brazil depends. To have plantation rubber increase from a production of only four tons in 1900 to over 300,000 in 1920, while Brazilian production decreased from a maximum of 42,000 tons in 1912 to less than 20,000 in 1921, means to Brazil a loss of purchasing power which seriously affects its whole economic life.

More important still, at least as far as the United States is concerned, is the fact that the change of source for

rubber from Brazil to the East Indies placed the control of this commodity largely in the hands of the British, or the British and the Dutch, which at once raised an international question. One of the results of the World War was an aversion to dependence on a foreign nation for raw materials used in a key industry. With 95 per cent of this product coming from British and Dutch possessions, close together geographically, it would be, as an Assistant Secretary of Commerce of the United States epitomized the situation, "a comparatively easy feat for any first-class power completely to cut off our supply in the event of war."

The Department of Commerce asked Congress for an emergency appropriation of \$500,000—\$400,000 for the Department itself and \$100,000 for the Department of Agriculture. The government did not intend to enter the rubber business; it wanted to find a source of rubber which would be near at hand or at least not subject to restriction and interference by a great foreign power. The appropriation was granted and an American Rubber Commission headed by Dr. W. L. Schurz, American Commercial Attaché in Brazil, spent some eight months of 1924 in the Amazon district investigating the possibilities of establishing the production of Brazilian rubber on a sounder economic basis. The final report of this commission has not yet appeared, but preliminary reports indicate the possibility of financing with American capital a \$10,000,000 rubber plantation, either in the State of Pará, Brazil, or in Liberia, Africa. Arguments seemed to favor the Brazilian state until the outbreak of the São Paulo revolution, July 6, 1924. Such a disturbance in what was supposed to be the most stable state in the republic naturally made investors wary of placing \$10,000,000 in Pará.

INFLUENCE OF RUBBER DEMANDS ON PRICE FLUCTUATIONS

But the demand of the automobile tire and tube for rubber had more to do with the remarkable fluctuations of rubber prices from 1905-1921 than did the change of source. The peak prices for rubber reached in 1910 were due to its greatly increased use for motor cars, a use which up to that time had increased much more rapidly than the output. The high prices received for rubber in 1910 (\$3 per pound) led to a great speculative boom in rubber planting, company after company being formed in London. The war, with its abnormal demand for tires and tubes and with its phenomenal increase in the manufacture of passenger cars throughout the world, absorbed a supply of rubber which under ordinary circumstances would have been far beyond the world's needs. The low prices of 1922 (13½ cents per pound) were partially due to the world-wide business depression and to the lack of buying power in Germany, Russia and other European countries, but the slump in prices was in no small degree caused by overproduction.

When in that year the governments in control of the plantations stepped in to raise the price by reducing the area cultivated, the automobile led again to a knotty international problem. British investors claimed that the ruinously low prices of 1922 did not permit a return of even 3 per cent on the more than \$600,000,000 of British capital invested in the East Indian rubber plantations. So serious was the state of the rubber industry during the years of post-war deflation that the Rubber Growers' Association suggested the

production be reduced 25 per cent for one year from November 1, 1920, and in 1921 proposed a further reduction of 25 per cent. Owing to lack of co-operation these suggestions did not materialize and the situation grew worse. In October, 1922, the British Colonial Office recommended the British Rubber Restriction Act, which materially decreased production.

At once American users of rubber were concerned. On the day the restriction plan was put into effect the price of rubber rose 10 per cent. On November 1, 1922, less than a month after restriction became effective, prices had risen 50 per cent, and during the first four months of restrictive legislation the price of raw rubber soared 150 per cent. An Assistant Secretary of Commerce of the United States characterized the curtailment of the production of rubber as "economically unsound and wrong" without, of course, implying that this temporary expedient was unjustified in its attempt to save large British investments. But an international query appears forthwith. If government intervention may raise the price of rubber to save British fortunes, why may not the Japanese Government do likewise for raw silk, or the Chilean Government for nitrate, or the American for wheat or cotton?

The automobile industry occupies a prominent place in our industrial organization. Without adequate supplies of rubber and gasoline it is doomed. Rubber is and will always remain for us an exotic product; gasoline consumption may within a decade necessitate imports of crude oil. Obviously the automobile is linked with international problems of oil and rubber, and these are still unsolved.

The Rubber Industry and the Automobile

By J. WALTER DRAKE

Assistant Secretary of Commerce, U. S. Department of Commerce

NEARLY half of the families of the United States have automobiles. There are fifty or sixty millions of our people using this indispensable means of individual transportation. We have indeed a motorized country. The horizon of our people in a social and economic way has been so widened by the introduction of the motor vehicle and the modern highway that the whole national life of America presents an astonishing comparison with that of other countries.

Twenty years ago a large part of our country, even including the cities, was in a frontier condition as to roads. With the phenomenally quick acceptance of the automobile and its adoption into the daily life of Americans, there has been a parallel development of highways. Together they furnish a system of individual transportation which is so commonly in evidence in every direction that we hardly comprehend its extent and effect. It has had a far-reaching influence in bringing to our citizens an enjoyment of comforts and conveniences of living far beyond those of any other country in the world.

Except for rubber, the phenomenal development of the automobile itself and of a nation-wide system of improved highways would not have been possible. The automobile upon hard tires would not have been so quickly accepted as a convenient and comfortable means of transportation, nor would the modern science of road building have been able to cope with the problem of durable highways, subjected to the hard tires of countless thousands of rapidly moving, heavy vehicles. The shock of constant vibration would have

presented a serious difficulty to the manufacturers and designers of the automobile. America, with sixteen million automobiles running on steel tires over concrete pavements, would be an inconceivably noisy place to live in.

DEPENDENCE OF MOTOR INDUSTRY ON RUBBER

Wonderful as has been the development of the automobile industry, that of the production of rubber, and especially of plantation rubber, runs side by side with it. Four-fifths of the rubber used in this country today goes into tires. Every car owner requires an average output of one-eighth of an acre of rubber trees. Automobile equipment during the year 1923 required crude rubber to the value of approximately \$150,000,000, but at the price prevailing five years before, the value would have been twice that amount. Practically all of our rubber comes from the eastern tropics, Malaya, Ceylon and the Netherlands East Indies being the chief producers. We use about 77 per cent of the world export of this commodity, valued in 1923 at approximately \$240,000,000. In these figures is presented to industrial America a problem of vital importance.

The automotive industry is one whose wonderful and rapid development has made it quickly possible for it to seize a dominating position in the markets of the world; this has been contributed to more than anything else by typical American ingenuity and resourcefulness and the readiness to develop and adapt to the manufacture of motor vehicles every device of modern mass production. Furthermore,

the home market of this motorized nation furnishes, and will continue permanently to furnish, a basic demand for the product of our automobile factories that will enable them to continue their hold upon foreign markets and extend into new and hitherto untouched fields.

Of all materials used in automobile construction, rubber, which is so indispensable, is practically the only one of importance which is obtained from sources wholly under foreign control; and in the mere statement of this fact we should see a warning. If we would continue to enjoy the benefits, in both our domestic and foreign trade, of our outstanding position in the manufacture of automobiles, we must likewise apply our American business sense and foresight to safeguarding our national supply of rubber.

METEORIC GROWTH OF RUBBER INDUSTRY

Most of us are probably familiar with the story of an Englishman named Wickham, who collected a shipment of rubber seeds in the Brazilian forests in 1876, chartered a steamer and took them to London. They were planted in Kew Gardens and the same year seedlings were shipped to Ceylon with a view of experimenting in the transplanting of the *Hevea* tree from its habitat to the eastern tropical countries owned by Great Britain. The chief motive thus far was scientific, but the results have been far-reaching in industry and commerce.

In the late 70's of the last century, the coffee industry in Ceylon had been wiped out by disease, and the planters, having turned for a time to tea culture, found themselves at the opening of the present century interested in the possibilities of rubber production. They were getting unprofitable prices for their tea, while rubber was selling at a

price which appeared to offer a great field for those who grew it under plantation conditions. The planting therefore spread with great rapidity, but because it requires five or six years for the rubber tree to develop to the point of production, it was not until 1907 that there were substantial exports of plantation rubber from the East. In that year a total of a thousand tons was reached, and in the same year the amount of wild rubber that came into the market was 68,000 tons. That small percentage of plantation rubber was sufficient, however, to indicate its possibilities when grown on a commercial basis.

From that time on the growth of the plantation rubber industry was astounding. Rubber, which fifty years ago was used largely for foot wear, water-proof clothing and in some lines of mechanical goods and druggist sundries, came into a dominant position in world trade as suddenly and surely as did the automobile. Each depends upon the other. Modern science, which through Wickham in 1876 with almost prophetic vision had experimented in the commercial development of the rubber tree, had again made possible the development of a wonderful industry, destined to be one of the most important factors in the prosperity and happiness of the human race.

A RUDE AWAKENING AND ITS RESULTS

It has already been pointed out that the sources of our crude rubber are under foreign control. In one way or another Great Britain controls 75 per cent of the rubber industry. Holland exercises political control over some 29 per cent thereof, including the British-owned estates in her colonies; America, on the other hand, owns only about 2 per cent of the plantation rubber area. These facts, which have been published

before, cannot too often be brought to the attention of American business men. This situation, which has been developing over a period of years, was forcibly brought to the attention of this country in the year 1922, largely through the efforts of the British to save the rubber industry from disaster through ruinous prices brought about by the then over-stocked condition of the rubber market. The act by which a remedy was sought by the British for this situation, known as the Stevenson Restriction Act, was designed to secure a standard production to be regulated and based upon the output for the year 1920. The contraction or expansion of production was to be secured by the increased percentage of release based upon the increased market price or a contraction if the market price should fall off. The effect was in fact calculated to impose an obnoxious and detrimental foreign control over the sources and price of the crude rubber requirements of this country.

Something of this sort was needed to shock our manufacturers into a realization of their situation with reference to the control of this commodity so necessary to American industry. The fact that the foreign countries in control of rubber were openly taking steps to control production and regulate the price in the world market crystallized public attention on the situation. Congress was induced to appropriate funds for an

investigation of the sources and production of crude rubber and other commodities under foreign control. Under the direction of the Department of Commerce, investigators were sent abroad to study the matter in all its phases and gather all the facts as to the nature and the production of rubber and its adaptability to other countries where it is not now grown. Experts were sent to the Philippines and to Latin-America to study the possibilities of establishing an industry of our own. These men pushed into every corner of the rubber-growing sections of the world. They were experienced and equipped to get all the facts and assemble and correlate them so as to present the whole subject fully to the American people. Some of the results of this investigation have already been published, and it is a pleasure to know that the leading men of this country, interested in our source of this raw material essential to their industrial future, are giving earnest attention to the problem of our future supply. There is no material now in sight as a substitute for rubber for automobile tires. The facts that have been gathered and marshalled into a convincing case call for action. I have no doubt that the great automobile industry and those allied with it will not fail to safeguard themselves in this important item of our national industry and trade by ensuring against a further foreign domination and control of crude rubber.

The Development of the Foreign Oil Policy of the United States

By HENRY C. MORRIS

Formerly, Chief of the Petroleum Division, U. S. Chamber of Commerce

THE factor of most vital importance in the amazing development of the automobile during the past two decades is the equally astounding and coincident growth of the petroleum industry. Each was dependent upon the other to a degree even yet hardly realized by the man in the street.

By no stretch of the imagination can we conceive of the demands for kerosene and the other products of crude—without gasoline—stimulating the oil industry to the growth of the last decade, for which the insatiable appetite of the internal combustion engine for gasoline is most largely responsible.

Neither can we think of the development of the automobile as possible without cheap and efficient fuel, which petroleum alone could supply.

AWAKENING OF U. S. TO OIL PERIL

The war and its aftermath of economic writing for popular consumption, brought home to the thinking people of this country the fact that the United States, in order to supply the ever-growing demand for automobile fuel and lubricants, not only for foreign but even for domestic consumption, was—and always has been—drawing upon its own supplies of crude to a much greater extent than any other section of the world and was therefore depleting an irreplaceable asset at truly alarming extent. The fact, however, that practically every demand for petroleum products in this country had been met from United States production and from Mexico, and the success of the wildcatter in constantly extend-

ing the producing areas or in finding new ones, had largely obscured the question of future supplies to all but a very few of the larger companies. Indeed, it is a question if even their quests for foreign sources of petroleum were not principally induced by their desire for production nearer their foreign markets, rather than their desire to conserve their resources in the United States and provide for future home supplies.

The lesson taught by the war, however, changed this attitude very materially and also resulted in the tardy awakening of the United States Government to the situation facing our nationals, in their more energetic attempts to obtain control of potential producing areas in the most promising territory abroad after the war.

Some attempts had been made by Mark Requa of California and others to fix the attention of our government upon the question, but no lively interest was manifested until after the close of the war. For several months prior to the Armistice, Messrs. Naramore and Perdue, of the Bureau of Mines, Department of the Interior, had represented the United States Government in the Allied European countries in matters of petroleum supplies and they consequently obtained a vast amount of information on the plans and policies of the larger foreign companies and their governments.

When these men returned to the United States and reported to the then Director of the Bureau of Mines, Dr. Van H. Manning, he was so impressed

by the seriousness of the situation that he instructed Mr. Perdue to present a formal report in detail, which was promptly brought to the attention of the Secretary of the Interior, Mr. Lane. He, in turn, instantly recognized the need for the formation of a definite governmental policy and line of action, and immediately called the attention of President Wilson and Secretary Lansing to certain phases of the situation.

FORMING DEFINITE U. S. OIL POLICY

From this beginning, the demand for reciprocal open-door privileges and quick protests against apparent discrimination, inimical to our companies and nationals, has developed into a fixed policy of the United States Government and has been closely adhered to by the succeeding administrations. The inauguration of this policy and the difficulty of impressing it upon foreign governments is amply attested by the many communications between this government and those of several foreign countries, of which those that have been made available to the public are an indicator of the positiveness of those which have not been so divulged.

The results of this policy are as satisfactory as could be expected, in a country of which the executive policies are so dependent for definite effect upon legislative support as is the case in the United States. The complicated and delicate nature of the negotiations and the difficulty of impressing foreign governments with its continuation have, however, made the endeavors of our State Department more onerous than they should be.

In addition, the very close co-operation between certain other governments and their large oil companies is a factor of immense bearing in the international contests for petroleum fields. Our own government and our foreign-interested companies are working together as closely as possible, under the handicap of deliberate misinterpretation, and petty partisan politics and it is greatly to their credit that the so-called international petroleum controversy has gradually assumed a more amicable aspect, though there are still several irritating—and deliberately unjust—discriminations in Russian, Dutch and British territory. These situations give weight to the arguments of the proponents of reciprocity or retaliation. It is to be hoped, however, that the self-centered nationalistic policies of nations whose present supplies of petroleum products come largely from the United States, while they are either unable to adequately develop their own potential oil resources, or are hoarding them for the future while taking advantage of our leniency, will be altered by force of world opinion.

When the time comes that we suffer even a temporary dearth of domestic supplies, the wisdom of our present governmental attitude and the value of the many foreign petroleum areas, which our companies have acquired, will be more apparent. It is needless to say that then those who have, from the most unworthy motives, attempted to discredit our foreign oil policy, will be the first to acclaim the farsightedness of our oil companies and the endeavors of our officials.

What is the Job of the Trade Association?

By ALFRED REEVES

General Manager, National Automobile Chamber of Commerce

THERE are two types of problems within every business which may be classified as competitive and non-competitive.

Each manufacturer is concerned with the production details of his plant and with the marketing of his particular brand.

He is likewise, with the others in the field, ultimately dependent upon the success of the industry as a whole.

In the automobile field this distinction is rather strikingly illustrated because the motor car and motor truck, owned by millions of persons, operating over public highways, constituting a new form of transportation, are involved in a large number of questions which pertain not to the particular make of vehicle, but to the automobile as a means of travel.

Important as these general questions might be to the individual plants, it would obviously entail a very heavy burden on any particular factory to attempt to represent the industry in such matters, and for any number of companies to do so separately would involve duplication and confusion of effort.

Here, then, lies the job of the trade association. The makers of cars and trucks for a number of years have handled their noncompetitive activities through the National Automobile Chamber of Commerce.

This is a co-operative group, operating not for profit, supported by the manufacturing companies. The policies in its varied line of activities are directed by committee members, who are executives of the member com-

panies, and by a board of directors similarly constituted.

Its field of effort may be broadly divided into:

- (a) Patents.
- (b) Economic Research.
- (c) Commerce.
- (d) Motor Transportation Policies.

The members of this association cross-license approximately 600 patents. This has led to the standardization of a vast number of relatively unimportant parts of the motor vehicle and has permitted the interchangeability of parts, which has worked for great economy in the production of motor vehicles, with consequent low prices to the public. It has saved the industry vast sums which would otherwise have been consumed in law suits. In its automobile patent library, which is the largest in the world, the Chamber has the facilities for determining in advance from the records the probable validity of any proposed patent.

The inventor is encouraged, as under the cross-licensing agreement he has the possibility of a large number of companies using his device, rather than being tied up to one. The progress of engineering is encouraged, as laboratories are freed from the bother of working out minor details and can confine their efforts to more important features of design.

ECONOMIC RESEARCH

The Chamber has a staff which is constantly at work studying the use, distribution and other phases of the motor car and motor truck. It has

issued reports, for instance, on distribution of motor vehicles in the farm field, the relationship of the railroad and motor truck, and the operation of busses by electric lines.

It publishes annually *Facts and Figures of the Automobile Industry*, which includes, from a variety of sources, the latest data on production, registration, use and other details related to the motor vehicle.

COMMERCIAL PROBLEMS

It handles certain problems for its members. Commercial presentations are made. For instance, road freight rates and regarding rail-office is provided which freight claims the member company checks bills for also made through them. Contact is the insurance company association with pertaining to car companies on matters

The service ratings. tive company managers of the respective companies hold occasional meetings under N. A. C. C. auspices to discuss the improvement of trade practices.

The Chamber holds two annual automobile shows, one at New York and the other at Chicago, at which times, through the massing of their models under one roof, there are afforded exhibitions of sufficient cars to attract hundreds of thousands of visitors.

Foreign trade is promoted through the committee dealing with that subject, which last year arranged the World Motor Transport Congress, and conducts a constant information service which supplies countries abroad with facts concerning motor transportation in this country.

The advertising managers meet for conference semi-annually.

The tests for membership in the organization, demanding that a concern must be an actual producer of vehicles, and not simply a purveyor of promises

and stock certificates, help to maintain high standards.

MOTOR TRANSPORTATION POLICIES

The motor vehicle in public use has created many problems, such as traffic regulation, taxation, highway building, and financing.

The Chamber has a traffic planning committee which campaigns and safety prevention.

for accident highways and taxation committees have been studying for years the needs of highway development, the needs of which the motorist should pay, share whatever methods of financing.

and the legislative committee, in conjunction with the motor user, dealer, junction, and tire associations, has parts made steadily for a uniform campaign law and has advocated motor principles of legislation.

certain principles have tried to stand for The industry matters which are in policies on these most public interest. accord with the best motor transportation. It has realized that motor transportation will continue to be popular with the public only as long as its affairs are conducted on that basis.

The automobile leaders, for instance, at one time opposed the Federal expenditure of \$100,000,000 for highway because there was no provision in the bill pertaining to the economic location of the roads or requiring their maintenance. Though this stand was perhaps temporarily disadvantageous to motor development, the industry took the stand that highway funds should be spent only where economic conditions demand it and that a percentage of the money should always be set aside for protecting the public investment.

Believing that questions of this sort will ultimately be decided by the public through their public officials, the Chamber, after carefully studying all these issues, constantly advocates what

it believes to be the best principles by means of newspaper articles, addresses, pamphlets.

In short, the job of the trade association is to perform those noncompetitive functions for an industry which cannot

as properly or as economically be handled by the individual plants. In so doing, it pools the intelligence of the leaders in the business and through the efficiency of this method of operation, reduces the overhead cost to society.

Serving the Motorist The Work of the National Motorists' Association

President By RICHARD H. LEE
President, National Motorists' Association

THE most amazing progress in the recent history of our country is that of transportation by motor, and it is even more amazing to those who have been intimately acquainted with the constantly unfolding details so necessary to the development of the automobile. As a pioneer of the movement, looking back over the movement, I can almost imagine that the changes have come through some great magic force.

To the layman, the development of the automobile means merely making more cars. But nothing could be further from the truth. For it must be borne in mind that, with the development of the manufacture of motor cars, there came the necessity for highways—better highways—and constantly improved highways; for garages and better housing conditions; for increased fuel supplies, conveniently located and accessible to the motorist in time of need; for the creation of traffic and police regulations; the enactment of equitable laws; and innumerable details, which I am sure do not occur to the mind of the ordinary individual, who accepts the development of motor transportation as just one of those things which are.

CONDITIONS OF YESTERDAY

MOTORING CONSIDERED AS CLEARLY AS THOUGH

I can remember a motor trip in 1901. It was yesterday to Cincinnati. To begin with, the motor was no such real speculation. We had no such things as hard roads and content to travel any road which did not lead buggy down below the hub. We had no gasoline filling stations, and the few people who knew what a garage was were uncertain whether it was pronounced "gar-age" or "garage." There was no state wide regulation; no such thing as a license commissioner. But there was plenty of regulation! In fact, in each county, then again in each town, and once more in each village, there was a keen conviction that the motor car was a thing of evil and that none should ever travel their highways without first paying a fee; second, displaying a large piece of tin prominently placed upon the car, with the name of their particular hamlet painted upon it; and third, in all chance paying a fine for having gone too fast, but just how fast "too fast" was, was not determined. And the courts, rather sympathizing with the viewpoint of the rural community, were inclined

to think that it was not necessary to determine how fast "too fast" was!

Strange to relate, we made the trip, although by the time we reached Cincinnati we were so loaded down with license tags that there was little room for baggage and an ample weight on the springs without passengers.

The automobile, however, came too fast for its critics. The law could not be made to apply with sufficient sureness and swiftness to stop the rascals from scaring the horses. So we arrived at the period where the people took the law in their own hands and built "Thank-ye-Mums" across the highways. Then came the constable and the special constable and the special constable's assistant, with the speed trap and the justice sitting on the front porch on Saturday afternoon holding "court." This was expensive, but delays were obviated by the speed with which the motorist learned to enter his plea of "how much" instead of "not guilty." This was a rather profitable enterprise for the rural officer and has never been entirely eliminated, but looking back at the various stages through which the automobile and its driver have come, down to the present time, when the service to the motorist upon the highway is about as good as the service to a guest in a hotel, I am impressed more with the details which have made the growth of the automobile possible than with the mere manufacturing problems.

WORK OF AUTOMOBILE CLUBS

There are today in the United States more than eleven hundred automobile clubs organized and maintained for the benefit of the motorist on the highway. These clubs are usually controlled by a board of public-spirited citizens in each particular locality. In many cases they are affiliated with a state association, composed of the clubs in

that particular state, and the state association in turn is in most instances affiliated with the national motoring body.

This type of organization makes it possible for the local club to look after local matters, such as the improvement of streets, the elimination of danger points, the sign posting of roads and the enactment of proper local ordinances.

The state organization was created to take care of business which crossed the county lines: the building of state highways and their proper maintenance; the enactment of legislation to provide safeguards for both the motorist and the public, and to handle generally all questions within the state which go beyond the bounds of a particular community.

The national organization was created to take care of national legislation; to provide great national trunk lines connecting the states with hard surface, properly built and well-maintained highways that lead to definite points; to advise with state highway commissioners so that the money spent for highways might give the motorist within the state the maximum of convenience when traveling without the state; and it is also performing a valuable service to the motorist in calling to the attention of the national government the necessity of some aid in the building of highways, which, in a strict sense, are national.

A membership card in one of the local automobile clubs, affiliated with the national organization, to all intents and purposes, makes the member in that club a member of practically every club in the country, and in most instances, through that membership, he is entitled to receive all of the benefits of the other club ordinarily extended only to its own members. This is particularly true of such clubs as the

Keystone of Philadelphia, the Long Island of New York, the Pittsburgh Motor Club of Pittsburgh, the Illinois Club of Chicago, and clubs of that type. In these clubs we find complete touring information for the motorist away from home; they either have garage facilities or they can advise of the best to be had; they will make hotel reservations, arrange for railroad or steamship tickets, or even get tickets for a football game, if you wire them in advance. They maintain an inexpensive towing service, through which the member in trouble upon the highway can be reached by an emergency road car within a short space of time, after telephoning the club. While most of them will not defend speeders, they will nevertheless give every aid to the motorist and will see that he is fairly and justly treated and, if he is being discriminated against, they will gladly procure counsel and make his defense.

In some of the clubs, automobile accessories and supplies can be purchased at greatly reduced rates. In some, insurance is available at rates below the manual. In fact, generally speaking, it is the aim of each local club to provide all of the benefits which the motorist in that community requires and demands.

The clubs as a whole, through their various organizations, are constantly on the alert in campaigns to eliminate grade crossings, to procure more uniform laws in the various states, to protect the motorist from fraudulent schemes and generally to receive specific complaints from the members

of the club and to act upon them in behalf of all motorists.

A very interesting sidelight on the possibility of organized motorists is the orphans' day held by many clubs. On an annual date the members of these clubs provide their motor cars, food, toys and all the necessary machinery and equipment for an outing for all the orphans in their particular town. In one city this outing has been held for a number of years; no children are overlooked. It is held in a large amusement park, where the children are welcome to ride the merry-go-round and enjoy all of the equipment of the park. The children are tagged as they leave the institution, each car is in charge of a man or woman whose duty it is to look after the children in that particular car, and, during all the years in which the outing has been held, not a child has been lost, nor has an accident occurred. On the contrary, the members of the club have come to know the orphans and call them by name. Many of them have taken the same children year after year and through their acquaintanceship have formed the habit of calling upon the children, and in some instances they have been adopted.

Not all the motorists of the country are members of these clubs, but the benefits are general and whether a motorist belongs or not, he is, by reason of their existence, permitted to drive under better laws, over better highways and receives, as a direct benefit, a treatment upon the highway very different from that which greeted the motorist of twenty years ago.

Services of the American Automobile Association

By ERNEST N. SMITH

General Manager, American Automobile Assoc

BACK in 1902, when the American Automobile Association was formed by delegates from nine small, new motor clubs, there were about 30,000 automobiles in the United States and the new fad of motoring was a vulnerable activity subject to attack from many directions. The automobile, or, as it was then generally called, the horseless carriage, was often referred to as the plaything of the rich, and quite a large faction of the public was openly hostile to it. Politicians, seeking public notice, took a whack at the motorist. In those days windshields were considered dangerous, cars cranked on the side, rubber bulb horns cleared the way, motor lamps were lighted with great difficulty, stout ladies could not ride in the tonneau which was entered by a narrow slit in the rear of the car, and huge goggles and dusters were worn by everyone who ventured forth. A fifty-mile drive made the occupants resemble a wagon load of unwashed laundry. Tires were fearful contraptions to handle and a puncture practically ended the day's festivities. Such words as garage and tonneau were pronounced with difficulty by the proletariat and the gentleman who called to take a lady motoring and who wished to be modest about it, would better have accomplished his purpose by hiring a brass band. The most popular song of those days was "In My Merry Oldsmobile."

At present the association is composed of a band of over 600,000 motorists, most of whom are members of clubs affiliated with the National Organization. Over 90 per cent of all the functioning motor clubs in the

United States belong to the Three A's and many of the clubs, now numbering over 500, are members of state motoring organizations. The system of government is patterned somewhat after our National Government, except that the executive officers and governing boards serve without compensation. The various affiliated bodies are represented on the national boards and all have a voice in the management of the central organization. In the handling of state problems the clubs are banded together into state associations, and such powerful organizations as the Pennsylvania Motor Federation, the Ohio State Auto Association and the New York State Auto Association have been important factors in the formulation of wise motor laws in individual states.

There are several Three A clubs, located in Cleveland, Detroit, Chicago, Missouri and northern California, that have more members today than there were automobiles in the United States when the American Automobile Association was born. Motor clubs have of recent years become the largest civic organizations in their communities, and such Three A organizations as the Columbus, Ohio, club and the Cincinnati, Ohio, club, with approximately 15,000 members; Scranton, Pa., with 8,000 members; Buffalo, New York, with 6,000 members; and Springfield, Mass., and Washington, D. C., with 4,000 members, and innumerable other clubs with a membership of 2,000 and more, will indicate the splendid support that motorists give to organizations operating in the public interest and in behalf of the motorists them-

selves. Such organization as the above joining in a national service and a national policy give concrete evidence of the interest that motorists themselves take in solving their own problems.

The American Automobile Association has earned a place in history. It was the pioneer in the early recognition of the importance of motoring, and during the past twenty-two years it has taken a prominent part in bringing about the almost universal use of the automobile and in the development of individual transportation.

It has encouraged the building of good roads everywhere. It has frowned upon recklessness and carelessness and violation of the law, and it has promoted wise, just and fair national and state legislation.

It has stood as a barrier against aggression by predatory legislators and against unwise laws proposed often as a result of public ignorance.

David Jameson, a former president of the association, recently pointed out the changes in the activity of the association with the passing of the years. He said:

When this organization was young, its members approached horse-drawn legislatures with clasped hands, praying for clemency and leniency in the application of those weapons with which prejudice and hate too often greet innovation.

You were few, but you were chosen. You were a minority, but you were picked. As good stock ought to do, you grew.

Today you are not simply a majority, you are mighty near the whole thing. You no longer approach law makers asking mercy; you come demanding justice and fair treatment.

It would be interesting, did time permit, to consider at length how the spirit of organized motordom has changed and is changing with the events referred to. We are much less on the defensive, much more

on the offensive. We appeal less, are appealed to more.

Many of the things we sought have been granted. Many of the ends we aimed at have been attained. Our motives have changed.

We have passed from purpose accomplished to responsibility assumed or imposed. Leadership has come to you naturally and inevitably.

You are now the ones most concerned about the marks of identification on your car. You lead in the wise regulation of traffic. The era of good road building has arrived. You have certainly had a large part in bringing it, I believe the largest part.

It is no longer difficult to secure the appropriation of money for roads. They are all doing it. The Federal aid, which your national organization has labored for in season and out of season, has been provided generously.

But let none imagine that our mission is ended, that our work is done. An end accomplished is, as I have said, usually a responsibility assumed. There is more and more work for the motor clubs and their central organization.

Its kind changes, but its quantity increases with the years. We have advocated the appropriation of public moneys. We are in honor bound to assist in its wise expenditure.

The major activities of the American Automobile Association are divided into four groups, although, in fact, they comprise several others. These are:

Good Roads
Touring Information
Legislation
Contests

New boards have been recently authorized, one of which will handle problems relating to traffic and safety and the other with motor transport. An international relations board has been created and a new industrial vehicle division is being formed.

WORK OF A. A. A. TOWARDS GOOD ROADS DEVELOPMENT

The achievements of the association in promoting good roads have been particularly notable. The automobile was born into an almost roadless world and consequently is almost solely responsible for practically all of the highway improvement that has taken place during the past twenty years, and the American Automobile Association, as the national association of motor vehicle users, bore a prominent part in bringing this condition to pass.

As early as 1903 one of the clubs in the association appropriated \$10,000 with which to promote the Brownlow-Latimer Federal Aid Good Roads Bill, the first of its kind to be introduced in Congress. Since then the Good Roads Board of the organization has been actively urging the betterment of national, interstate and local highways.

During the early days of motoring the few motorists who braved the poor roads of the rural districts often encountered farmers who were decidedly hostile to them and quite suspicious of them in spite of the eloquence and sympathy displayed by the motorists in urging the law-makers to build good roads.

The serious participation of the A. A. A. in highway matters began with the convention conducted by the Automobile Club of Springfield, Massachusetts, in 1907. The second A. A. A. National Roads Convention was held in Cleveland in co-operation with the National Grange and the American Road Makers in 1909. The third convention was held in St. Louis in co-operation with the same organizations. Similar meetings were held at Atlantic City, 1912; Detroit, 1913; and Atlanta, 1914, the latter meeting in co-operation with the American Highway Association.

Co-operating with the Association of State Highway Officials, its first Federal Aid Convention was held in Washington in 1912, and the second in 1913, resulting in the establishment of a joint committee of both houses of Congress to study the question. At that time over forty separate Federal aid measures were pending in Congress. During the winter of 1914-15 the House of Representatives passed one measure, known as the Shackelford Bill, and the Senate reported a substitute known as the Bankhead Bill.

The first step toward a comprehensive Federal aid plan, known as the Bankhead Bill, was approved by President Woodrow Wilson on July 11, 1916. At that time John A. Wilson, a cousin of Woodrow Wilson, was president of the American Automobile Association. This bill carried an appropriation of \$85,000,000, apportioned to the states on the basis of area, population and post road mileage, and was to be expended in the succeeding five years on the condition that at least one-half the cost would be contributed by the several states.

In 1919 the American Automobile Association and other organizations urged substantial increases in the Federal appropriations and during that year Congress added \$200,000,000 for Federal aid and \$9,000,000 for forest roads. From 1917 to 1925 Congress appropriated or authorized \$540,000,000 for Federal aid and \$47,000,000 for forest roads—a total of \$587,000,000.

During 1920 and 1921 the A. A. A. and other national organizations worked for a measure which embraced the broad idea of having the National Government build, own and maintain a system of national or interstate highways.

The late Senator Townsend of Michigan, then chairman of the Senate Committee on Post Offices and Post Roads,

sponsored this idea in the Senate. Opposition from the advocates of the original Federal aid plan was sufficiently strong to defeat the Townsend Bill, but a compromise measure, known as the Federal Highway Act, was passed in 1921 and received the approval of President Harding on November 9 of that year. It provided for an interstate system of highways not exceeding 7 per cent of the mileage in each state on which all future Federal aid would be confined, the Federal Government to pay not more than 50 per cent of the cost. Any state which failed to maintain the roads to the satisfaction of the government would forfeit all future Federal aid.

Over \$1,000,000,000 has now been provided by the Federal Government and the states for the construction of this great system, which when completed will embrace about 200,000 miles. Thus America has inaugurated the most gigantic program of road building ever conceived by any nation. When completed it will be $33\frac{1}{3}$ per cent greater than the national systems of all the other nations in the world combined.

Every legitimate effort will be used by the association to expedite the completion of this system. Working through its affiliated clubs, the association has a well-defined program for close co-operation with the state highway departments, under whose immediate direction the national highways are being built. It is the object of the A. A. A. and its affiliations through a campaign of education to help the state highway departments to gain and hold public confidence, to the end that their road building activities may be free from partisan politics and that adequate funds may be provided by the states to complete the national and state systems at the earliest possible date.

CULTIVATING THE TOURING HABIT

To encourage road travel and transportation by furnishing reliable touring information has always been an important part of A. A. A. service. The association issues an annual *Camping and Camp Site Manual* and a *Hotel Directory*. Many of the clubs render a number of useful services to members, including headlight inspection, legal advice and mechanical roadside aid. The latter is truly the Good Samaritan service of the organization and has probably done as much to promote and facilitate motoring as any other service rendered by the organization. There is gradually being extended over the country by the association a network of emergency road service stations for the immediate assistance of motorists in trouble.

The association and many of its member-clubs have for years maintained extensive map departments. Scouts are constantly employed to discover and log the best routes and to note the most important points of historic, scenic and recreational interest. With the national headquarters as its clearing house this information is widely disseminated.

The preparation of a series of historic maps has been begun. The first of these, published in the May number of the *American Motorist*, the association's official publication, shows the main points of historic interest in Virginia. The map is accompanied by 90 pages of illustration and explanatory text. The effect of this has been to give new interest and a new stimulus to travel in the Old Dominion. Similar work is now being undertaken in Florida and this will be followed up in other states.

LEGISLATION

From the first day of its existence the American Automobile Association has

been a leader in the fight for fair and just treatment of motorists. Distinct progress has been made in tearing down the false fabric of unjust laws enacted when the industry was young and lacking in power and influence. The Legislative Board has always been prominently active in the affairs of the organization. It has checked the trend of discriminatory laws and stigma taxation and it has secured the enactment of many national and state laws based on the solid foundation of justice and fair play.

Among the outstanding legislative achievements which have been accomplished through A. A. A. co-operation and support during the past few years, the following are worthy of mention:

The enactment of the Dyer Anti-Theft Law, which makes it a Federal offense to transport a stolen automobile across a state line;

Securing Congressional action authorizing the distribution to the various states of about \$250,000,000 worth of surplus war property for road building purposes;

Encouraging the enactment of certificate of ownership laws to prevent the theft of automobiles in the various states;

Promoting the enactment of standard headlight laws and uniform traffic regulations and rules of the road;

Opening of the Yellowstone and other National Parks to motorists;

Securing national legislation by which several thousand dangerous railroad grade-crossings have already been eliminated;

Resisting the proposal of the Treasury Department to raise Federal revenue by the imposition of a gasoline and horsepower tax;

Defeating the plan of the House Ways and Means Committee to place one third of the cost of the Soldier Bonus directly on the automobile owners of the country;

Defeating the proposal of certain oil interests to place a tariff on all oil and asphalt imports;

Resisting the proposal of certain interests to have every automobile registered, taxed and titled by the Federal Government;

During the past session of Congress the A. A. A. led the fight which resulted in a reduction of \$25,000,000 a year in the excise war tax on automobiles, trucks, tires, accessories and parts.

These successful legislative battles afford striking examples of what may be expected of the organization in the future. The legislative program of the association contemplates the complete elimination of all discriminatory laws and all remaining excise war taxes now levied against automobiles.

CONTESTS

Soon after speed and reliability contests became popular, about 1904, the Contest Board was developed as the official sport governing body of motordom. The national contests for the Vanderbilt Cup and the Glidden Trophy were conducted by the Board during the early days of motoring.

The Vanderbilt Cup was awarded in competition for speed and the Glidden Trophy for reliability. These two trophies did more for the mechanical development of the automobile than any other American prize and these tours and contests have been of the utmost importance to the industry and in perfecting and improving the automobile.

For eighteen years the Contest Board has been supreme in its field. No contest of importance can be staged without its consent and sanction. Its rules have been fairly administered and its efforts have been toward clean sport and improvement in the character, efficiency and economy of operation of the modern automobile.

EFFORTS TO SOLVE TRAFFIC PROBLEM

With the character of the work of the association changing and with the new

emphasis upon traffic regulation and zoning quite as much as upon the development of new highways, the officials of the Three A's are turning toward the solution of traffic problems. It is recognized today that the next ten years will see the construction of super-highways, and the physical alteration of parts of many cities to provide traffic avenues for the new methods of transportation which have come to stay, and the American Automobile Association is doing its share in preparing the public mind to accept the developments that are bound to come, even though great municipal expenditures are involved.

But of immediate concern, and recognized importance, is the question of uniform traffic regulations and signals in cities. The solution of the problem is made more complex by the variety of types of cities and the geographical differences. But a start must be made and the A. A. A. has joined with other important transportation agencies in supporting financially and by appropriate co-operative activity a national conference on street and highway safety called by the Secretary of Commerce. This conference, divided into various sections

of experts, has been at work for weeks and it is expected that before the end of the year the conclusions of this important conference will be placed before the public as a starting point in the universal adoption of constructive traffic rules and practices.

There are over 16,000,000 motor cars in the United States and half of them are owned in communities of 5,000 or more population. Nearly one-fourth of the motor vehicles of the country are owned in the cities of 100,000 population or above. Hundreds of thousands of motor trucks are engaged in interstate traffic. You can travel half way across the United States on motor bus lines and this phase of motor development has just begun.

However much the American Automobile Association may have accomplished in the past, its responsibility has now become the greater because its activities helped materially to create this new commercial and pleasurable manifestation of the present century and its vast resources and its far-flung contacts and the ability it possesses within its ranks can and will be used for the solution of those motor problems which bulk so hugely upon the horizon of the average American citizen.

The Place of the University in Good Roads and Automobile Transportation

By ARTHUR H. BLANCHARD

Professor of Highway Engineering and Highway Transport, University of Michigan, and President, National Highway Traffic Association

THE present status of education for highway engineering throughout the United States is comparable to the standing of the work of the highway engineer, in the mind of the American lay public, and, to a greater or less extent, in the opinion of the engineering profession. The nonrecognition by

legislators of the necessity of placing the control of the administration, construction and maintenance of highways in the hands of well-educated and efficiently-trained highway engineers, is reflected by the expressed attitude of many educators in the allotment of the small amount of time which is devoted

to highway engineering in our universities.

The waste of millions of dollars annually in the United States will continue until the profession of highway engineering is placed on the same basis as structural, hydraulic, sanitary and kindred branches of civil engineering. England, France and other European countries have seen the light. As a result, efficient highway engineers are retained in office, organizations are perfected, methods of construction and maintenance suitable for local conditions are employed and as a consequence the public funds are wisely and economically expended.

It is advisable to call attention to the character of the positions which are being filled today by highway engineers. Such positions are found in national, state, county, municipal and town engineering departments, contractors' organizations and the engineering and research departments of companies manufacturing road machinery and materials used in highway engineering.

NECESSARY EDUCATIONAL GROUND WORK

In order that the civil engineer in embryo should enter on his life work at graduation with as general a knowledge of the field of highway engineering as of other branches of civil engineering, it is necessary that considerable attention should have been given by him to the following subjects: (1) A study of the historical development of highways, exemplifying the inter-relationship between social progress and the improvement of public traveled ways; (2) preliminary investigations, including traffic investigations and highway transport surveys, to determine the amount and character of future traffic; (3) surveying and mapping, peculiar to highway engineering; (4) the theory and design of highways; and (5) a consid-

eration of materials used in and the methods of construction and maintenance of the many classes of roads and pavements which exist, which study would include drainage and foundations. Furthermore, such important subjects as street cleaning and snow removal; the relationship of the construction of car tracks and pipe systems, sidewalks, bridges and culverts to highways; and, finally, the comparison of the essential characteristics of roads and pavements and a consideration of economics, administration and legislation as applied to highway problems should be considered.

It is obvious that to recommend that, as an integral part of all civil engineering curricula, a specific amount of time should be devoted to the study of highway engineering, would be as unjustifiable as the practice of many laymen in seeking for a panacea in the form of one type of road or pavement to satisfy all traffic and local conditions. It is advocated, however, that as much time should be devoted to highway engineering as is now assigned to hydraulic or sanitary engineering, or to railroad engineering. If this plan is adopted, at least three semester hours would be assigned to highway engineering, as a requirement for all civil engineering students.

Educators throughout the United States should seek to elevate the profession of highway engineering in America to the plane of the National Department of Roads and Bridges of France and to provide an opportunity for men engaged in highway work to obtain advanced instruction and training under favorable conditions. The heads of national, state, county and municipal highway departments should be broadly educated, thoroughly trained and experienced specialists in highway engineering and efficient exec-

utives. They should be able to discuss publicly and to solve economically the fundamental problems of highway economics, administration, construction and maintenance. Such men should have a broad educational training in such humanities as English, history, economics, philosophy, political and social science. They should also be well grounded in the fundamentals of pure and applied science which underlie highway engineering and the several branches of civil engineering which are utilized in highway work. After a man has secured his fundamental education in engineering and has had a certain amount of practical experience in highway work, the opportune time has arrived for securing professional equipment through the medium of graduate courses in highway engineering.

WHAT HIGHWAY TRANSPORT EDUCATION SHOULD INCLUDE

What is included in highway transport education? The author conceives that highway transport education should cover the fundamentals of the science, art, economics and business of the transportation of passengers and commodities over highways. Courses in this field will be taken by men looking forward to the profession of highway transport engineering, the motor-vehicle industry, and the businesses of traffic management and highway transport.

In the opinion of some, highway transport may not be considered as belonging to the field of technical training and education. On sober thought, however, it will be seen that this branch of knowledge comes well within the classic definition of engineering embodied in the Royal Charter of the Institution of Civil Engineers of Great Britain, which, in part, is as follows:

The art of directing the great sources of power in nature for the use and conven-

ience of man, as the means of production and of traffic in states, both for external and internal trade.

From the standpoint of highway transport business, courses in this field will be taken by men who desire to equip themselves efficiently for the positions of business administrators, dealers, salesmen and advertisers in the motor-vehicle industry, and executives, operators, traffic managers, motor-truck fleet managers, and dispatchers in the commercial field of highway transport, and in the closely related fields of railway and waterway transport.

What is the demand for highway transport engineers and men equipped for highway transport business? In May, 1920, the First National Conference on Highway Engineering and Highway Transport Education held in Washington, D. C., unanimously adopted the conclusion that 4,000 men should be trained in highway transport each year in universities for the positions heretofore enumerated.

RESULTS OF INADEQUATE TRAINING

Many have misinterpreted the meaning of this conclusion. Emphasis should be placed on the words "*should be trained.*" The representative committee framing this conclusion had in mind the economic and efficient utilization of highway transport in the transportation system of the United States.

What is the present situation in regard to the demand for highway transport engineers and men trained in the business of highway transport?

Many highway departments are not properly designing the highways for even immediate future traffic, because their personnel does not include men who have had the proper training in highway transport to have a vision and adequate background which will enable

them to diagnose the probable development of traffic on a given highway. Or, in other words, to make a highway transport survey, the prerequisite of economic highway design, which embodies all investigations in the field and office which are necessary to efficiently estimate the probable amount, character and effects of the future traffic which will use a given highway during the lives of its several component parts.

Motor-truck manufacturers' organizations are in a chaotic condition, from the standpoint of the proper utilization of men trained in highway transport. Why? In general, they have followed in the obliterated footsteps of companies manufacturing highway machinery and materials. The latter companies originally established departments which were advertised to give unbiased consulting service to their customers.

What was the result? In the first place, it was found impracticable to divorce unbiased opinion from the commercial interests of the organization represented and soon prospective customers began to realize this self-evident fact. Second, disastrous conflict arose between the highway transport engineering department and the sales organization, a natural result to anyone familiar with the inter-relationship existing between the activities of such departments.

In the near future the motor-truck manufacturers of this country will see the light and follow in the footsteps of the closely related companies which have already passed through the transition stage. Concretely stated, the sales organizations of motor truck, tractor and trailer companies should be composed of men trained in the fundamentals of highway transport and the efficient use of the equipment manufactured by the company which they represent.

Failures of highway transport enterprises are occurring every day, due to a lack of knowledge of the fundamentals of the economics, science and art of highway transport. It is reported that ninety per cent of all highway transport companies doing business with New York City as a center fail within three years after entering this field. While fifty per cent may fail, due to cut-throat competition by fly-by-night companies, it is conservatively estimated that at least fifty per cent fail because of lack of knowledge of the A B C's of efficient highway transport business methods, cost accounting, management, and the operation and maintenance of equipment.

HIGHWAY TRANSPORT EDUCATION

We find a satisfactory status relative to the development of highway transport education in the universities throughout the United States. In some institutions, the logical development occurs by the men having charge of highway engineering courses giving courses in the related field of highway transport. In other institutions, such courses are offered by the department of economics or business administration.

If these departments are to teach highway transport efficiently, the instructors must have a knowledge of the fundamentals of the economics and science of highway engineering and practical highway transport. It is expected that notable developments will take place along these lines, especially when authoritative texts are available. We have a development, in the main, of undergraduate instruction in the fundamentals of highway transport.

GRADUATE COURSES

The practicing engineer may secure advanced knowledge pertaining to modern practice in his speciality by the

utilization of one or more of the following agencies: (a) technical literature; (b) meetings and transactions of technical societies; (c) graduate engineering courses in technical institutions.

American educational institutions offer the following channels which are open to men who desire to equip themselves for the profession of engineering.

1. A bachelor of arts, bachelor of philosophy, or bachelor of science collegiate course with electives in engineering.

2. A four-year course in general engineering.

3. A four-year course in a special field of engineering.

4. A graduate engineering course requiring a baccalaureate degree and a total attendance in educational institutions of from five to six years.

5. Graduate engineering courses after having followed out one of the educational lines outlined above.

By a judicious utilization of educational facilities, the acquisition of an educational training for any given branch of the engineering profession may be attained by several combinations of the courses previously mentioned.

As used in this paper, graduate courses for practicing engineers refer to advanced specialized courses designed primarily for men who have taken a first degree in art, science, or engineering; who have acquired a knowledge of fundamental principles upon which such advanced courses are based; and who have had a certain amount of practical experience in engineering work.

Based on an experience with graduate courses for practicing engineers extending over a period of fourteen years, it has been found that the following classes of men are interested in such courses:

(a) Graduates of four-year bach-

elor of science courses in general engineering and graduates in non-technical courses who wish to equip themselves for a special field of engineering work.

(b) Graduates in civil, chemical, electrical, mechanical, and mining engineering courses who come in contact with problems or fields of work, with reference to which they desire detailed information based on modern engineering experience.

(c) Non-graduates who may be engineers, chemists, contractors, manufacturers, or others interested in some special branch of engineering and who have acquired a sufficient knowledge of the fundamental principles to enable them to carry on advanced work satisfactorily.

As a definite indication of the demand for advanced courses in special fields of engineering will be cited the fact that during one year one hundred and ten men, whose average age was twenty-seven years, enrolled in the graduate professional short-period courses in highway engineering and highway transport at the University of Michigan.

The conclusion has been reached by experienced engineers that, if graduate courses are to meet satisfactorily the demands of the profession, the following conditions should be fulfilled:

1. The courses must be given by specialists who are acknowledged experts.

2. The courses must be given under such conditions that it will be practicable for practicing engineers and others engaged in engineering work to take advantage of the opportunities offered.

3. The graduate work must be broadly administered so that the courses of instruction are open to any mature man, provided he can satisfy the prerequisites for the given course or courses which he desires to take.

4. The content of the courses must

cover detailed information pertaining to the most recent developments of modern practice.

5. The methods of presentation of the subject matter of the course must be adaptable to the class of men enrolled.

6. Ample facilities must be available for conducting research work in laboratories, libraries and in the field, where every phase of the special field of engineering covered by the graduate courses may be investigated.

Book Department

HEBER BLANKENHORN. *The Strikes for Union*. A Study of the Non-Union Question in Coal and the Problems of a Democratic Movement. Based on the Record of the Somerset Strike, 1923-24. Pp. 259. Price, \$2.25. Published for the Bureau of Industrial Research, by the H. W. Wilson Company. New York: 1924.

Mr. Blankenhorn is a trained industrial investigator with a purpose. The obvious purpose is to see how far the labor movement is willing and ready to assume a commanding position in the management of industry. He therefore addresses himself in this book not only to the problems of a union pitted against the employers and against the organized coercive power of the community controlled by the latter, but also to the matters of internal democracy in the union and of the degree of responsibility felt by the leaders towards the community and toward their own members. Mr. Blankenhorn's conclusions are not super-optimistic on the last named score. Yet he holds out the hope of an ultimate reform of capitalist industry by the union and of a reform of the union by its rank and file membership. The critical reader will probably query whether an outsider like Mr. Blankenhorn can, in all fairness, pass authoritative judgment upon the acts of national union leaders, who, in the very nature of their position, must take into account many more factors than are visible to a local investigator, however well trained and penetrating.

S. PERLMAN.

JOSEPH, H. W. B. *The Labor Theory of Value in Karl Marx*. Pp. 176. Price, \$2.00. New York: Oxford University, American Branch, 1923.

In *The Labor Theory of Value in Karl Marx*, the author, a fellow and tutor of New College, Oxford, undertakes to show that the theory is fundamentally false and that the widespread acceptance of it among the laboring classes is doubly mischievous,

because it makes "their justified resentment at the working of the economic order take the form of denouncing one definite alleged injustice," and because "it exasperates those whom they attack by the injustice of the particular allegation."

After a restatement of Marx's theory, Mr. Joseph devotes chapters to (a) the inconsistency between the consequences of the theory and fact, (b) homogeneous human labor, (c) the individual relativity of value, (d) the illusion of absolute values, and (e) some morals and a conclusion.

In an elaborate abstract discussion, Marx's theory, which he borrowed from earlier English economists, is completely disproven. Mr. Joseph himself refers to it as having received "very damaging criticism long before" Marx made use of it.

As a plain matter of fact, the author seems to have selected the weakest part of Marx's work to attack, and he nowhere shows any appreciation of the value of the labor theory for purposes of propaganda. He makes no reference to Marx's profound study of economic history.

The letter of economic theory leaves no justification for labor as a sole basis of value; the spirit of the economic interpretation of history offers at least some foundation for the feeling of injustice which the worker has as to his share in the proceeds of production.

Such a view is outside the limits set by the author for his study. The reviewer is constrained to raise the question why in such a survey a broader perspective was not adopted. To disprove the soundness of the labor theory of value is merely an exercise in the mechanics of logic.

FRED E. HAYNES.

DOWNY, E. H. *Workmen's Compensation*. Pp. xxv, 223. Price, \$2.00. New York: The Macmillan Company, 1924.

The author of this book, Dr. E. H. Downey, was, at the time of his accidental death after the manuscript was completed, the foremost American authority on workmen's compensation. He was by training

an economist and an actuary, and from the very beginning of compensation acts in this country was connected with their practical administration.

Dr. Downey's purpose in writing this book was two-fold: (1) To present his conceptions of what is an adequate and practical system of compensation for industrial accidents; and (2) to show how far short existing compensation acts fall of these standards. Both of these purposes are fulfilled in a manner which leaves little room for disagreement or criticism.

Dr. Downey bases his conception of what compensation acts ought to accomplish upon the proven fact that most work injuries are attributable to inherent hazards of industry. From this he concludes that each industry should bear the cost of all injuries arising therein, whether accidents or occupational diseases. Theoretically this leads also to the conclusion that industry should bear the entire loss due to work injuries, but Dr. Downey recognized that practical considerations justify a somewhat lower scale of benefits. What he advocates is full medical relief and benefits commensurate with wage loss (75 per cent of the wage loss for temporary disability), payable during the entire period of disability or dependency.

It is in this most important matter of benefits that existing compensation laws are most seriously inadequate. Even under the most liberal of them, industry bears less than half of the direct monetary cost of work injuries, and under some of them less than one-fourth. Other deficiencies in existing laws Dr. Downey finds in the exclusion of many classes of workers, in administration which permits of needless litigation and delays in the payment of claims, and in inadequate regulation of compensation insurance.

The net impression created by this discussion of the shortcomings of existing compensation laws is somewhat depressing. One wishes that Dr. Downey might have elaborated upon his brief statement that, measured by the situation which obtained before compensation, the advance has, nevertheless, been very great. After all, however, what is most important is to bring home to the American public the fact that

existing compensation laws are still very inadequate and for this reason have failed to accomplish all that they might accomplish in reducing the social cost of work injuries. In establishing this fact, Dr. Downey has rendered the greatest possible service to the advancement of labor legislation in this country.

JOHN R. COMMONS.

LUBIN, ISADOR. *Miners' Wages and the Cost of Coal*. Pp. 316. Price, \$2.50. New York: McGraw-Hill Book Company, Inc., 1924.

In *Miners' Wages and the Cost of Coal*, Mr. Lubin sets as his goal an analysis of the wage system of the organized fields of the bituminous coal industry and a consideration of the effect of that system upon "the welfare of all who are concerned with the coal industry." The rate structure of the non-union fields is discussed only incidentally, its examination being reserved for a later volume.

In Chapter I is given a brief survey of the commercial coal fields, an excellent description of mining methods and the manner in which the work of coal mining is carried on underground, together with a classification of wage earners. Then follows a consideration of the structure, function, and membership of America's most powerful labor union, the United Mine Workers. This "close-knit, well-defined and more or less centrally controlled" national organization is contrasted with the numerous, local, independent operators' associations, which are seldom capable of concerted action because of severe competition. Despite this anomaly, the industry, except for the strikes of 1919 and 1922, has been "peculiarly free from national labor difficulties."

Mr. Lubin describes the Interstate Joint Conference, the wage-determining machinery of the organized areas, which fixes the rates for the basing points of the four districts of the Central Competitive Field, comprising Illinois, Indiana, Ohio, and western Pennsylvania. Separate district conferences then adjust the rates at the various mining centers to these basic rates, and sub-district conferences make modifications, whenever necessary, to meet peculiar

local conditions. Wage scales in the outlying districts, originally based upon local conditions, are adjusted by independent district conferences to meet the changes put into effect for the Central Competitive Field. Thus, there is no national system of wage negotiation, but "a series of independent yet interdependent local wage agreements," separately arrived at; yet, in the last analysis, "union wages in all districts of the country go up and down together," the extent of rate changes being determined by the Joint Interstate Conference.

Underlying this wage system is "the definite principle of competitive equality." This principle, the author states, "has ostensibly been the basic factor in determining the rates fixed for the various mining centers of the country," and was originally accepted "in order that as many operators as possible might become parties to the collective bargain." Both sides, however, according to Mr. Lubin, from the beginning have differed in their interpretation of the principle. To the operators, competitive equality has meant "access to the market, irrespective of variations in mining conditions," and to the miners it has meant "uniform minimum earnings for all miners irrespective of local conditions."

This dual interpretation of the principle of competitive equality does not, in the reviewer's opinion, date back to the origin of the Joint Interstate Conferences. Both groups, in his opinion, attempted to modify the wage rates as far as practicable on the principle that all mines in a given district be permitted to produce coal and to place it on the market. The shift in the interpretation of competitive equality on the part of the union, if such has occurred, is of comparatively recent origin. It must be kept in mind that both operators and unions, as Mr. Lubin himself states, are prone to seize upon my argument which will enable them to secure a more favorable economic position. This principle has never been accepted as applicable to day rates except in the case of two or three sub-districts of southern Ohio.

In fixing pick-mining rates, the author points out that certain factors, such as distance from markets, the thickness of coal seams, the quality of the coal, freedom

from impurities and other deficiencies, have guided wage negotiations. The freight rate differentials to offset long hauls, he concludes, while of consequence in establishing the original rate structure, of late have been "relatively insignificant in determining wage rates and in obtaining competitive equality."

In setting rates to cover work that "is not directly productive of coal," such as timbering, removing impurities, laying tracks, pushing cars, etc., "little attention has apparently been paid to competitive equality." In the more highly organized districts these rates "are fairly standardized and where the union has little power no unity of treatment exists." In some mines individual bargaining is still maintained.

Machine mining rates are set by deducting a fixed amount from the pick rates. The machine differentials vary widely from district to district. Two theories have been advanced for determining these rates. "The miners contend that the machine rate should be equal to the pick rate minus the cost of maintenance and a fair profit, and the operators contend that the machine rate should be an amount which will yield an income to the machine miner equal to that of the miner working under a pick rate." Both theories have been applied in the different districts, the local bargaining power of the opposing parties determining which theory was to be given greater consideration.

When speaking of thick and thin vein differentials, Mr. Lubin is not always clear. At times he infers, and twice definitely states, that the theory underlying these principles is "in direct contradiction of the principle of competition," and yet he finally concludes "that the principle of competitive equality ultimately plays a part even in the fixing of the differentials for the thick and thin veins."¹ The confusion seems to exist in a failure to differentiate between piece rates and actual earning power. Many of the thin veins are being operated because the coal produced is of a superior quality. Piece rates, as an item of cost, in such cases

¹ Compare pp. 93 and 94 with p. 100 and more particularly 179, 180 and 183 with 266, 267 and 280.

are not comparable. In other instances, the higher piece rate may be offset by proximity to markets (as in the case of northern Illinois), favorable freight rates, greater accessibility to coal veins and geological conditions which facilitate the work of mining. Does the true relation between the piece rates of thin and thick veins become apparent until a comparison is made after multiplying the rates by the respective units that can be produced in a given time?

As the result of his investigation of the wage system of the organized fields of the bituminous industry, Mr. Lubin arrives at the following appraisal:

A general lack of unity pervades the entire structure and everywhere the results of trading and compromise are evident. Among the essential features which have been discussed, the following stand out as worthy of emphasis:

1. The pick-mining rates vary even as between those districts where conditions are fairly uniform and frequently the same rate is paid to pick miners working under widely differing conditions.

2. The differentials between thick and thin veins are characterized by inequalities that are the outgrowth of conditions which prevailed locally in the past—conditions which in many instances no longer exist.

3. Machine differentials vary from district to district and from sub-district to sub-district, the determining factor being the relative bargaining strength of the operators and the miners.

4. Dead-work and deficiency rates do not show even an approximation to consistency. Standards vary between districts, between sub-districts, and between individual mines in the same sub-district.

5. Only in the day rates for inside labor does one find a close approach to uniformity. Even here, however, significant variations prevail.

6. Rates for outside day men, owing to the absence of complete union control, show an irregularity almost as great as that which characterizes the dead-work and deficiency rates.

While the interstate agreement has eliminated the cut-throat competition which characterized the organized areas of the bituminous industry in the eighties and nineties of the last century, the author believes that "the principles adopted for adjusting wage rates have not in any large measure served the purpose for which they were originally intended." The present rate structure to a very large degree in many districts "is little more than the

crystallization of the system of rates that happened to be in effect when the United Mine Workers first gained recognition." He concludes that:

From all appearances, then, we may look forward to a continuation of the present chaotic wage-rate structure. Trading and compromise rather than a scientific analysis of the work to be done will in all probability continue as the basis of rate making in the organized fields. In the non-union fields wage cuts and wage increases may be looked for with every significant fluctuation of the market. And with it all one may expect a continuation of the unstable labor conditions which prevail in the bituminous coal industry—an instability which cannot be eliminated so long as the organized workers and union operators must cope, not only with local rate adjustments but also with a competition which is based not so much on the relative efficiency of the competing operator groups as on the power of one of the groups to control the wage rates it pays to its labor. Such is the price we must pay if we will to keep the United Mine Workers out of the unorganized fields.

The effect this wage system has had upon the well-being of the miner, the operator and the consuming public, Mr. Lubin summarizes in Part II of the last chapter:

The prevailing wages system has brought about no abnormal increases in mining wage rates. Since the inauguration of the Interstate Joint Conference, tonnage rates have not advanced proportionately as fast as have the rates paid to labor in other organized industries. Advances to day men have been about 18 per cent greater than the advances made to labor in industry as a whole. These wage-rate advances have had their effect on the cost of mining coal; but there is no direct relationship between the changes in labor costs due to wage advances and the changes in coal prices. Many factors equal in importance to labor costs have determined the market prices of bituminous coal. While there have been periods when advances in coal prices have been much greater than the increase in labor costs would have warranted, there have also been periods when coal prices have been so low as to leave little margin above the outlays for labor.

To the extent that the wage-rate system has made use of differentials it has proved economically wasteful. Although the machine differential has not up to the present time visibly affected the installation of machinery to any appreciable degree, it has, theoretically at least, kept from the consumer part of the savings which

result from the use of machinery. The machine differential has also maintained in operation certain pick mines whose product could not otherwise meet the competition of machine-mined coal.

The freight and thin-vein differentials likewise make possible the operation of many mines which have little or no economic justification for existence. Like the machine differential they are indirectly a cause for the overexpansion that today characterizes the bituminous industry. To this overexpansion can be attributed in large part the irregularity which today prevails in coal mining—an irregularity which has brought with it loss of earning power for both the miners and the operators and high cost of coal for the consuming public.

In the examination of miners' wages and the cost of coal, Mr. Lubin has presented in readable form an exceedingly intricate and confusing wage system. The book shows wide reading and a knowledge of the variety of technical difficulties with which this industry is beset. The description of rate making has been admirably handled. The treatment of the many differentials which have played an important part in rate setting is a contribution. However, there is still needed a further analysis which will correlate the various differentials with labor and production costs, prices and quality of coal, the thickness of the seam and miners' earnings. The author has forcibly stated the problem facing the union miners and the operators.

The analysis of the effect of these differentials upon the overdevelopment of the industry, while suggestive, is far from conclusive. A statistical treatment which will measure, even approximately, the relation between the various differentials and overdevelopment is a task still to be accomplished before definite conclusions are permissible.

W. E. FISHER.

YOST, CASPER S. *The Principles of Journalism*. Pp. vii, 170. Price, \$1.50. New York: D. Appleton & Company, 1924.

CRAWFORD, NELSON ANTRIM. *The Ethics of Journalism*. Pp. viii, 264. Price, \$2.75. New York: Alfred A. Knopf, 1924.

The American newspaper is something more than a commodity to be produced and

marketed on the same principle as are shoes, matches, and soap. The newspaper is a public institution with a definite responsibility in the formation and maintenance of social ethics and other social standards. This is the gist of two books which herald an increasing social consciousness in journalism—*The Principles of Journalism*, by Casper S. Yost, and *The Ethics of Journalism*, by Nelson Antrim Crawford.

Both authors speak with authority. Mr. Yost, as one of the founders of the American Society of Newspaper Editors, is the leading figure among newspaper men in the attempt to raise the standards of the profession and its resulting product. He is editor of the *St. Louis Globe-Democrat* and has been a working newspaper man for forty years. Professor Crawford is head of the department of Industrial Journalism in Kansas State Agricultural College and has been a daily newspaper man.

The student of journalism cannot but find reason to be optimistic in the appearance of these volumes. Heretofore the greatest concern about the social relationships of the press has been confined to those outside newspaper offices. With leaven working both within and without the press, some important change is bound to occur.

Each author sees sharply the essential basis of present journalism—that the newspaper has a profound influence in the formation of ideas and the guidance of actions of the reading public, and that, as the critics of journalism have not always seen, the press of today is a product of the society of today and is as good or as bad as are its readers.

Of the two books, the more scientific and more analytical is Mr. Crawford's. With a clear, incisive style and few wasted words, the younger man outlines the newspaper as it is and furnishes scientific reasons for that condition. Mr. Yost, on the other hand, describes in an idealistic way the press as it should be if it coincides with the best traditions of journalism. His style is rambling and redundant. The meat of the book could be presented better in half the space.

Crowd psychology as the explanation of the tendencies of present-day journalism is held by the Kansas teacher. This is a

pioneer stand within the ranks of journalism and is a long step toward putting newspaper work upon a scientific rather than a hit-and-miss basis. It is the real contribution of Professor Crawford's book. Of great value, also, is a very complete bibliography.

The teacher of social science too frequently discusses public opinion and the newspaper without intimate knowledge of the technical nature of the latter. These books offer an opportunity to become acquainted with such essential facts as he would like to know. And they are interesting reading. The journalist, the teacher and the general reader will find little that is dull in them and a great deal that is of importance in his daily living.

LESLIE HIGGINBOTHAM.

McCULLOUGH, J. E. *Homs, the Savior of Civilization*. Pp. 638. Washington, D. C. Southern Cooperative League, 1924.

This is a large volume compiled for the use of families at their family altars. It consists of daily readings for the year for the "home council"—the name given the family group in its religious studies.

The quotations that serve as reading materials are gathered from widely scattered sources, ranging from the Bible, revised into modern English, to selections from the prose and poetry of the renowned and less renowned of many generations, but chiefly of those of the last century and our own.

The purpose of the book, as the title implies and the introduction states, is to make of the home "God's garden of character; the soul may grow elsewhere, but it grows to perfection there." The home should be the bulwark of civilization, the school of the spirit, and this book is the text which its initiator and editor evolved with his family in his own home, with what he and his friends have felt to be good results. He is now passing on his program to any who are interested in keeping the family altar a supreme element in the home, and in finding some concrete way of doing it.

MALBONE, GRAHAM W. JR., assisted by Robert C. Binkley. *New Governments of Central Europe*. (American Political Sci-

ence Series, Edward S. Corwin, general editor. Pp. x, 688.) Price, \$5.00 (library); \$4.09 (educational). New York: Henry Holt and Company, 1924.

This book is an excellent example of one type of service which it is the function of political scientists to perform in making their distinctive contribution to the ordering of a disordered world. It presents a careful study of the processes of disintegration and integration through which the political institutions of the peoples who composed the "Central Empires" passed during the fateful decade, 1914-1924. The historical and economic connections of the movement are deftly and, on the whole, adequately made. The new constitutions of the resultant states, Germany, Austria, Hungary, Czechoslovakia and Yugoslavia, are analyzed and the governments for which they provide shown at work upon the problems which they must solve before that infinitely complex and difficult task, the stabilization of Europe, is completed.

The author follows substantially the same plan in the presentation of his material upon each state. After sketching the historical antecedents of the then existing governments he describes briefly their organization and operation in 1914. Then, step by step, he traces their downfall and reconstruction. The factors in their destruction and regeneration—men, parties, political programs, long-repressed racial ambitions and antipathies, sectional and class jealousies, fears, hatreds and desires—are depicted in proper perspective. An enormous number of facts concerning all of these elements, and especially with reference to the programs of parties and leaders, are presented. The constitutional and legal relations between successive governments are clearly set forth. The "summary and conclusion," with which most of the sections end, present brief reviews of the movements which have been traced in detail and, in some instances, carefully considered estimates of their results. In the final chapter the author sets forth his conclusions as to the underlying unities which are to be found in the processes of national liberation through revolution and the consequent re-establishment of orderly governments through which all of these states

have passed. He also discusses briefly the very interesting subject of the relations between the Vatican and the new states.

Interesting and valuable features of Professor Graham's book are the "time charts" with which he has graphically portrayed the succession of cabinets and parties of each country in relation to time and to crucial political events, and a collection of 144 select documents, "of very real constitutional importance which are not to be found in collections of European constitutions." The volume, one of the first of the "American Political Science Series," is well written and edited and is beautifully printed. It does exceedingly well what it purports to do: "To fill a very obvious lacuna in the literature on comparative government."

RALSTON HAYDEN.

ARBITRATION TREATIES AMONG THE AMERICAN NATIONS. Edited by William R. Manning. Pp. 472. Price, \$3.50. New York: Oxford University Press. American Branch.

This publication, of the Division of International Law of the Carnegie Endowment for International Peace,

is designed to include, in so far as it has been practicable, all arbitration treaties, and all arbitral clauses of other treaties, which were signed between or among American nations before the close of 1910 and duly ratified.

The volume contains two hundred and twenty-eight such agreements, and seems to be fully and carefully what it claims to be, and nothing more. The interest is entirely in the documents themselves. There are two tables, chronological and alphabetical, but no index. The latter would, however, add little to the ordinary usefulness of the book. There is no introduction; and the notes confine themselves, without important exceptions, to concise information regarding sources and ratification.

The text is English throughout, "a counterpart of the present volume in the original languages" being "withheld awaiting the reception of the English version." The questions of policy connected with this

mode of procedure must doubtless be left to the editors. But, given the decision to publish an edition like the present, it seems not improbable that the audience, most likely really to be satisfied by an English translation, might have been advantageously provided with at least brief historical and interpretive notes. Still, for most purposes, the work will doubtless provide all that is needful as it stands; and it will certainly prove helpful in its scope, its availability, and its careful references to other publications of each treaty.

MOWAT, R. B. *The European States System.* [The World's Manuals series.] Pp. 96. Price, \$1.00. New York: Oxford University Press, American Branch, 1923.

This is a clear, concise, well-proportioned summary of how states in their relations with each other have progressed from status to contract. Early treaties were between pairs of nations only. Then came Machiavelli, Grotius, and the Treaty of Westphalia. The treaties of 1648 and 1659, establishing religious settlements and state boundaries, "represented a tendency toward international comity, toward the recognition of a *European States System*."

Europeans consciously began to preserve the equipoise, the balance of power, founded at Westphalia. Since then no person or set of persons has had in any one period both the will and the power to make an assault upon this European System. Their attempts have only modified it. Louis XIV failed. The Treaty of Utrecht, a European settlement, merely readjusted the work done in 1648.

The French Revolutionists' and Napoleon's assaults failed. The Congress of Vienna with its readjustments "was not meant to put Europe into a cast-iron system, but only into one which would be subject to orderly development, not to catastrophic revolution."

The latest attempt in 1914 has ended with the Treaty of Versailles. This provides for a fuller written system not only for Europe but for the whole world. "The Concert Powers have reinforced the old System with an additional member, the

League of Nations;" "the Concert has been replaced by a more organized body."

The book is throughout readable, interesting and suggestive.

D. R. MOORE.

BLANC, ELSIE TERRY. *The Co-Operative Movement in Russia*. Pp. 324. Price, \$2.50. New York: The Macmillan Company, 1924.

This is a serious and thoroughly impartial study of a most important phase of modern Russian life. It is unfortunate that the author's style seems so ponderous and the book such difficult reading, for it contains much interesting and enlightening material.

Although the history of the co-operative movement is traced in detail from its beginning in the 19th century as a conservative bourgeois venture, the description given of the part played by the co-operatives in the economic life of Russia since the revolution is the most interesting part of the book.

During the early period of Bolshevik rule, the co-operators were regarded by the government as "counter-revolutionary," and the author admits the truth of this charge. Furthermore, the thorough-going communistic program inaugurated by the Soviet government left no place for the co-operatives, as their property as well as that of individuals was nationalized.

But with the abandonment of Communism and the inauguration of the new economic policy of the Russian Government, the co-operatives were made the agency of the government whereby trade with Western Europe was re-established.

The author professes to look for the realization of the hope for world-wide peace and democracy when the co-operators of the

world unite on an international basis. She concludes with this statement:

In this movement, which spells a possible salvation for all nations, the Russian co-operators, working hand in hand with the Soviet power, are holding aloft a torch of light.

This is a consummation devoutly to be desired, but it seems too much to expect. If the Russian co-operators succeed in re-establishing economic stability in Russia, they will have rendered an inestimable service not only to that country, but to the world.

KENNETH D. MILLER.

LANE, TAMAR. *What's Wrong With the Movies?* Pp. 254. Los Angeles: The Waverly Company, 1923.

What's Wrong With the Movies is a useless addition to the literature on a subject which already suffers from too much writing of personal opinion.

The conclusion of the author that while motion pictures possess great potentialities, there is something wrong with the directors, actors, producers, authors, censors, comedians, exhibitors and critics, is based on an intimate discussion of those who earn their living in the various branches of the industry. Generally the reader is left in some doubt as to the exact nature of the difficulties which must be overcome before the industry can develop its potentialities. It is made clear, however, that whatever may be wrong, in a minor way, with the actors, managers and critics, there is nothing right about the censors. No constructive program is offered.

This book can be recommended for those who like quantities of personal gossip.

DONALD YOUNG.

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FOREWORD

Food is the first of human needs.

We are changing from a surplus to a deficit agricultural economy in this country. This volume brings together the essential facts on the present agricultural situation by the best agricultural economists of the country.

The farm situation differs in economic position from the price situation in other industries. In other industries the price largely fixes output. In the farm industry more largely output fixes price. It is just this essential difference that makes agricultural co-operation so important to future American well-being.

Coupled with this essential difference lies also the important fact that we are changing from a nation of great surplus in food products to a nation of deficit in food production. Many argue from this fact that we can, therefore, be heedless of our foreign policies. But so long as a goodly margin of some of our farm products are still to be sold abroad, so long will only a vigorous foreign policy protect the interests of American farmers. To transfer from an agricultural surplus in exports to a surplus of food imports means that we will have to export increased quantities of manufactured goods; or go backward industrially. The interests of the farmers in this country and the future interests of manufacturers alike, therefore, call for such a foreign policy as will protect and develop every latent

market whether for American agricultural goods or for the products of American mines and factories.

In this period of adaptation of farm output to domestic market needs, agricultural co-operative sales agencies will take an important place. The law of supply and demand is not an iron law which admits of no human guidance. The experience of changing both supply and demand for milk in the Philadelphia market alone points to the possibilities as to what co-operative sales agencies can do in order to guide production to its best market. For this reason one entire section of the volume is devoted to co-operation and another to fitting production to the market.

Credit is particularly due to Mr. Robert J. McFall, of the Massachusetts Agricultural College. Mr. McFall helped by advice and by hard work both as a co-editor and as a contributor to the volume. The need and plan for the volume was suggested by Doctor C. H. Crennan, of the Editorial Council, now of the Continental and Commercial National Bank of Chicago.

The volume is sent out with the hope that it may add to a better understanding of the difficult situation in which American agriculture has been placed in the post-war period and a true understanding of the fundamentals that will lead to prosperous homes on American farms.

CLYDE L. KING.

The Farm Income Situation

By ROBERT J. McFALL

Massachusetts Agricultural College

THE economic situation of agriculture should be subjected to tests similar to those used in judging the condition of any other industry. There are important differences between farming and other industries which must be recognized, but fundamentally the same economic tests must be applied to all classes of activity to determine the state of their economic well-being.

There are various important viewpoints of the economic well-being of a business which must be considered more or less separately. The interest of the rest of the business world which has commercial dealings with this industry is an important angle to consider. Then again there is the question of the business as an operating concern. If a business is successful as an operating concern and is a socially necessary business, operations will not be stopped merely because of unduly heavy capital charges, for capitalization can be reorganized. The complete business status, including capital charges, must also be considered. This gives what is virtually the angle of the business which is of interest to the operators.

REASONABLE CRITERIA OF AGRICULTURAL PROSPERITY

In the case of farming, this latter consideration is the interest of the farmers themselves as a group. The interest of the hired laborer is normally in his wages and terms of employment. In farming, however, there are so many gradations between hired laborers and operator-owners, on account of share-cropping, that it will be wise, if possible,

to consider the well-being of all the people as a group that are engaged in farming.

The interest of the rest of the business world in any industry is in its capacity to pay for the commodities and services of others. This reduces itself to the gross income of the business in question, whether the business be railroading or agriculture. It may be argued that capital charges and taxes should be subtracted from this gross income before the purchasing power is estimated for this purpose. Properly speaking, these should not be subtracted. The presence or absence of money available to meet capital charges, whether interest on mortgages or returns to the operator-owner, affects the amount of money distributed from farming directly or indirectly in payment for other goods, securities or services. The public income from taxes is spent for goods or services, and this expenditure requires the income out of which taxes are paid. Heavy taxes may divert the stream of income from the purchase of a new car to the payment for a better road for the old car, but in any event the gross income finds its way into purchased goods, services or securities, including savings deposit receipts. Consequently, the gross income of the industry in question, excluding duplications arising from transfers within the industry, is the proper index of the purchasing power of that industry for the goods and services of others. The other non-sentimental interests of the outside world lie in the supply of goods for which the income was received and in the assurance of a continuation of

production and spending power, which in turn depend upon the prosperity of the industry itself and the people engaged in it.

The prosperity of the industry as an operating proposition depends largely upon the relation between the gross income and the price level of the goods and services required by the industry itself for operation; in other words, on the purchasing power of its own income in the terms of the goods and services which it uses.

The complete business status of any industry and the interest of those engaged in it must take into account the gross income of the venture and what current expenses, and fixed and other charges, must be met before the net income, if any, becomes available to the owners. There are many questions which are subsidiary to this proposition.

The price of the articles for sale is one of the greatest factors in determining the size of the gross income. Size of output, however, is just as important as price in its influence upon income. A high price scale may wreck a business, while an increased turn-over at lower prices has made many fortunes. It is quite unsafe to assume here that farming is different from other industries, in spite of classical theory. The current expense account, also, with its various sub-classifications, is most vital to the well-being of any business and the people engaged in it. A few years ago it was very common for the current operating expenses of the railway corporations to be almost equal to, or greater than, their operating income. The shareholder's interests were not well cared for at that time. In farming, the main items in the current expense account include things which must be purchased for the business of farming, but not things purchased for the personal use of the

farmers and their families. Fertilizers and other raw materials, such as feed and feeders, as well as fencing, farm implements, farm machinery, gasoline and other power materials, and repair of buildings, must be provided for in the current expense account. Labor expenses must be considered when estimating the well-being of the business itself and that of the operators, but must not be subtracted from the gross income when an attempt is made to judge the well-being of the whole class of people engaged in farming, including hired laborers, share croppers, tenants and operator-owners. Properly speaking, the maintenance and depreciation allowances for such semi-permanent goods as farm machinery and buildings should represent these goods on the expense account. Where the farms are kept uniformly well supplied with such articles it is as well to disregard the refinements of accounting theory, and to consider current expenditures for purchases and the repair fund in the farm expenses. In periods of depression, however, all businesses, including farming, temporarily reduce their expenditures for purchase and maintenance of equipment. In the long run, however, it is necessary to make up for such scrimping.

As a matter of accounting, all taxes assessed against the farm and buildings other than dwellings must be counted as current expenses of the business. Personal taxes, such as those on income, dwelling houses, pleasure cars, etc., do not belong in the business or farm expense account; they come out of the farmer's own personal net income, if he has any.

After all strictly operating expenses have been subtracted from the total income, we are in a position to estimate the condition of the business as an operating concern. Operating expenses must include wages paid and

should consider wages due the operators for their services. Interest on mortgages and other interest charges do not, on the other hand, appear in strictly operating expenses. If the business shows appreciable profits after paying these operating costs, we may anticipate that it will continue. The extent of the profits will determine the extent to which capital may be profitably invested. The relation between the income and the items which make up the operating expense shows the purchasing power of the industry as an operating proposition. If this purchasing power is falling, the operation of the industry is jeopardized.

The well-being of the owners and operators in any business depends not only on the relation between income and operating expenses, but is just as much affected by fixed charges and all over-head expenses. The farm business, just as that of a corporation, must pay over-head or fixed charges on its capital or reorganize its capitalization. A business may be perfectly sound as an operating proposition and yet be so burdened with over-head charges that it is ruined as a corporate proposition.

In the long run, over-head charges cannot be paid excepting after reasonable current expenses, based upon efficient operation, are met. When mortgage holders foreclose, it is on the understanding that some other farmer will pay interest charges after meeting his current expenses. If it is impossible to meet fixed charges after providing for proper running expenses, then the income must be increased through increased size of business or better prices, or the over-head or fixed charges must be reduced.

It has been a very common thing in the past in agriculture, as well as in other business ventures, for the real estate and the capitalization of the business to be valued on an inflated

level as compared with the current earning capacity. Securities in corporations have frequently been floated on the basis of earnings anticipated for some more prosperous future period. Land, both in cities and in the farming communities, has been bought and sold at prices markedly higher than the current earning capacity of that land either in production or when rented. In so far as this was true in normal times, it may safely be said that two businesses were combined; production and speculation. Farming and land speculation have been inextricably mixed up in this country. To the extent to which land speculation has inflated the price of farm property, it is not proper to count either interest or taxes on this price as an expense of the business of farming. Such excess charges belong properly to the business of land speculation. In prewar days this latter business probably subsidized true farming and artificially depressed farm prices for the farmers who were not also land speculators. In these last few years it has been a common custom to consider the losses in land speculation as a charge against farming. So also, it has always been a common custom to charge the full over-head capital expenses to the business of farming. We shall see later what an unfortunate effect this has had upon the estimates of costs of production of farm products.

It probably is true that there is a third basis for the selling values of farm real estate. Farmers bid against each other for the possession of farms in order to secure for themselves a home and property which they own and on which they may be relatively independent. In England the social prestige of land ownership is a very powerful factor in determining real estate prices. In this country it is a more powerful factor than is generally rec-

ognized. This is not the same as speculative value, but for convenience will be classed with speculative value.

Under the heading of over-head costs must be considered the customary rate of interest on the proper value of the land, buildings and equipment devoted to the business of farming. Interest on investment in the personal dwelling is largely a personal rather than a business expense. It is true, however, that most farm dwellings are used for farm business as well as for strictly personal purposes. Following the foregoing discussion of speculative values, we must avoid the charging of interest on that portion of the capital value which is speculative. A fair rule of thumb would be to substitute for interest a payment equal to customary rental charges in the neighborhood and count that as a true farming cost, assigning the remainder, if any, to speculation. What interest is due on mortgages and notes given for current capital is strictly a fixed charge and probably seldom greatly exceeds a legitimate charge on farming in normal times. Interest on land or current capital owned by the farmer is not, strictly speaking, a fixed charge, but it certainly is a proper over-head expense for the farming business. It should be paid to the farmer as a land owner before we can estimate the "complete business status" of agriculture.

It frequently happens that farming, just as any other business, is capitalized more heavily than the combined operating and speculative businesses can stand. In such a case financial reorganization is in order. In the case of our large corporations a great deal of adjustment of capital values comes through the shifting selling values of the securities. If the earning capacity gets so low that current expenses eat up so much of the gross income that actually fixed charges cannot be met,

a drastic reorganization is in order. In farming it is not so easy to reorganize the capitalization. Farmers as a class feel a personal obligation to pay off all capital borrowed. They are not educated to the conception of corporate limited liability where the obligation is on the business solely, and not on the person. It is true also that a mortgage is usually accompanied by a personal bond. There is also another decided difference in business custom between farming and other ventures in the relation of the interested parties to the business after financial reorganization. A merchant or manufacturer may go through receivership and retain his personal connection with the business after the capitalization has been adjusted to the earning capacity. A farmer "loses his farm" when his capitalization is reorganized.

After all business expenses are paid and the "complete net business income" discovered, there remains the personal business income of the farmer. It is this residue which must be considered in estimating the prosperity of the farmers as a class of economic producers. It is this residue when compared with the prices of goods and services used by the farmers and their families personally which gives the purchasing power of the farmers as such. When this residue, if any exists, is ascertained from the total income of the whole nation's agriculture, it is necessary to take account of the change in the number of the farmers among whom this figure must be divided as the years pass. The net income of the individual farmers is varied correspondingly.

Personal taxes might be supposed to be subtracted before arriving at the real personal purchasing power. However, all taxes not definitely classable as contributions due from the individual and counted as personal expenditures

should be provided for as an expense of the business and are already deducted. Moreover, a very large part of the farmers' taxes, business as well as personal, are in reality merely the payment for public purchasing of group requirements. Personal taxes are not a *quid pro quo* for the individual, but for the agricultural population as a group they are largely a *quid pro quo*. The school tax is a group expenditure for the benefit of the community group, although some individuals in the community may receive no direct benefit. The national taxes which give a less direct return to the group are largely indirect or income taxes. Income taxes have had but little effect upon the farmers recently. Indirect taxes appear in the price of commodities and services purchased and are fully accounted for when the purchasing power is derived by the use of purchase prices. In an index of spending power personal taxes must certainly not be deducted from the farmer's income. For all practical purposes it is a question if farm taxes should be deducted from income before computing the purchasing power for the agricultural group or the average or representative farmer. Since we cannot separate the various classes of taxes due from the farms and the farmers it will be necessary to consider the net business income of farming in two ways: with taxes included as an expense and with taxes excluded from the expense account.

In finally summing up the economic status of those engaged in agriculture, several phases of the matter should be considered as far as the data permit.

The status of the operators should be presented. In doing this, wages should be counted among the operating expenses. After all operating expenses and fixed charges for capital and allowances for capital owned by the farmers are considered, the remainder is

the income of the operating farmer from his farm operations. He personally has in addition the allowances for his own work and his own capital invested in the business. His business income as a farm operator and his total income as a farmer and land owner should both be considered.

Wage data are available to show the income and terms of employment of the hired laborers. However, as already noted, there are so many share-croppers and tenants in addition to the hired laborers and operator-owners that it seems best to examine the status of the whole group of people engaged in agriculture. To do this it is necessary to return the sum paid for wages to the income available for distribution (or not to charge it in the expense items) and to distribute the total income among all the people engaged in the business.

COST OF PRODUCTION

There is considerable feeling in the country today that farm prosperity should be estimated in the light of cost accounting as applied to the production of farm products. Unfortunately, the keeping of general farm accounts is so uncommon that we have not much to hope for from the more intricate and deceptive cost accounts.

There can be no question but that cost accounting is a very valuable thing for some industries. However, it is a difficult thing to apply to industries where the problem of "joint costs" is a serious factor, as it is in most farming operations. It is a safe thing to say that no cost accounts are reliable if their results are not checked against a system of general farm accounts which leads up to an annual general balance sheet. The rarity of balance sheets for farming operations and the absurdities which have been committed by costing enthusiasts in

industries better able than farming to maintain proper cost accounts lead us to accept with decided reservations the findings of cost accounting applied to agriculture as a test of its prosperity.

There can be little or no question but that the application of cost accounting to agriculture as an educational measure is very much worth while, unless the methods employed are too erroneous. Such efforts should show the farmers very valuable facts on the comparative costs of different crops, combinations of crops and different methods of farming. Failure of the cost accounts to check with the balance sheet might not vitiate such results, and again even unduly large cost estimates might stimulate desirable economies.

This is no argument for the application of cost accounts in an absolute sense to the problem of farm prosperity. It is true that in this latter field cost accounts, if reduced to an index, may shed light upon the comparative prosperity in different times and different places. As a criterion of the agricultural prosperity of any community or time taken alone, however, cost accounts, as commonly used, must be taken with considerable reservation.

In New England we have heard much of the cost of production of milk. It has been the aim (not by any means always attained) of the organized dairy farmers to secure a price for that portion of their milk going into fluid sales which will equal the cost of production as worked out in accordance with the best accepted theory. Somewhat less than half of the total production in the whole section goes into such fluid sales. The rest is disposed of for much lower prices. In Vermont about one-third of the milk goes into fluid sales. As a result, the average price is materially lower than the theoretical cost of production. This

price, moreover, has recently been higher, as based upon prewar figures, than the general price level. In this case low price cannot have been the driving force in the expansion of production; the milk price has been very satisfactory as compared with prices of raw materials. And yet in the past four years the milk production of Vermont has increased by about 25 per cent. The presumption is that it was profitable for the farmers to increase the production even though the theoretical cost figures showed a loss.

The probable reason for this is that the cost accountants attempt to consider dairy farming as a separate enterprise. Dairying is considerably more expensive as a separate enterprise than it is when conducted in conjunction with the production of cash crops. The Agricultural Extension Services of Massachusetts and Vermont have recently issued a joint bulletin which states quite clearly that the farmers can hope to make money out of dairying only when combined with other farm ventures.

Light on this question is shed from another enterprise in a distant place by the evidence presented to the British Royal Commission on the Importation of Store Cattle.¹ The fattening of cattle is not generally profitable excepting as practiced in conjunction with other types of farm enterprises. It is unnecessary to multiply examples of profits from proper combinations of efforts when any one of these efforts taken singly would be futile.

Another serious defect in cost accounting, as applied to agriculture results, perhaps, in still more disastrous conclusions. It is a common practice to include, among the items of cost, interest on the total investment in the

¹ Proceedings before the Royal Commission on the Importation of Store Cattle, London (Cmd. 1541).

farm. We have already remarked upon the fact that much agricultural land has been bought and sold on a valuation based upon speculation rather than upon its present productive capacity. Land values in the West have very commonly in the past been held for prices which included a speculative element. Much of the land near our cities, in the East as well as the West, always includes in its selling value a large influence from its potential use in the future for urban purposes. The holder expects a return on this speculative value from the sale of the land. It is not good accounting to demand also a return on this from current farming operations.

The most serious side of this matter is that if a fair return on this speculative part of land value is allowed in the cost and at the same time is secured in the price of the products, the land valuation will be pushed progressively higher. The selling price of land which includes a speculative element of gain must keep above its capitalized earning capacity. If the price of farm products were raised to meet the land value every time the latter rose, the most vicious type of inflation would occur and depression be sure to result.

PRICES OF AGRICULTURAL PRODUCTS

The most popular criterion of agricultural prosperity is the price level of unit quantities of farm products. Taken alone this criterion tends to be misleading. When combined with information as to the variations in the quantity of output and the expenses of production, price data are very valuable.

The wholesale prices of agricultural products rose more than twice as rapidly as the general price level in the decade and a half before the war. In the field of world trade, as shown by British data, agricultural prices rose almost exactly twice as fast as all

prices. At the beginning of that period of comparison, as Dr. Friday shows so clearly from quotations from current publications of the time, agriculture was accounted very prosperous.² During the war the agricultural price level rose more rapidly and to greater heights than the general price level. Since the quantity output was increasing in total and per man employed during that period as a whole, we may concede increased prosperity. Since 1919 drastic price declines, affecting agricultural values more heavily than the general price level, have taken away a large part of the earlier gain. Comparing the year 1923 with the year 1900, we find that wholesale prices of farm products have increased 103 per cent, while prices of all commodities have increased 90 per cent.³ The purchasing power of unit quantities of farm products has increased somewhat during that period, which began, we are assured, with marked prosperity.

It is argued that it is unsafe to use such a distant base for reference and that the year 1913 or the half decade 1910-14 should be taken as the base.⁴ It is true that the more distant the base the more disturbing factors enter, but it is not safe to assume that the changes have all been for the worse with the farmers. Poorer lands have been brought under cultivation in the West in the past decade than in the one before. At the same time poorer lands in the East have been abandoned. Meanwhile agricultural technique has improved and, as we shall see, the cost of production has decreased per unit in terms of human labor and land.

² Friday, D. E.: *The Course of Agricultural Income During the Last Twenty-five Years*. *American Economic Review*, Supp., March, 1923, pp. 147-153.

³ Publications of the Bureau of Labor Statistics.

⁴ Warren, G. F.: *The Agricultural Depression*. *Quar. Jour. Econ.*, Feb., 1924, pp. 183-213.

If the year 1913 is taken as the base, the wholesale price of farm products rose 42 per cent by 1923, while the general price level rose 54 per cent. As a consequence, unit quantities of farm products declined in their purchasing power by 7.8 per cent. When taking the year 1913 as the base, it must be carefully kept in mind that this was a very prosperous period for agriculture in comparison with other times. Farm income had been increased by both price and quantity for a decade and a half since the prosperous year of 1900.

Farm prices are available for the comparison with 1913, but not with 1900. Such prices gathered with the same margin of error as wholesale prices would be much more valuable for the purpose at hand. However, it is difficult to conclude that farm price data can be as accurate as wholesale price data. Wholesale prices at principal markets are fairly well standardized; it is possible to estimate them within a fairly small margin of error. They are reported and published by many parties with all kinds of "bias." Moreover, published price lists are available for the use of the statistician in constructing wholesale price indexes. A reasonably accurate representative price can be found and used, although the errors are greater than supposed by the uninitiated. In the case of farm prices there is no such comparative stability upon which to base estimates. There are practically no standards of quality at the farm upon which to base representative prices. There is a very great variety of price on any product even in the same community at the same time. Since the prices cannot be published in such a way as to be directly checked, excepting for generalities, there is great difficulty in eliminating the "bias" of the reporters. Even in the matter of reports of

quantity of crops produced, the personal "bias" of the reporter is a very serious matter to the correction of which the U. S. Department of Agriculture has devoted a great deal of energy. "Bias" in the findings of country reporters is particularly strong in abnormal times. By the use of various checks, the errors in the final crop reports due to this cause are less than they otherwise would be. Reports on price are much harder to check. There can be no question but that there is a great deal of "bias" these days in the agricultural community on this matter of price; a "bias" which will be bullish in prosperity and bearish in these last few years.

These farm prices, published as such, show a variation in movement from wholesale prices of farm products. The direction of the variation is such as would be anticipated from either the "bias" of the correspondent or from actual economic movements. Just as retail price movements lag behind those of wholesale prices, so wholesale prices tend to lag behind those of farm prices. Available data on farm prices indicate that they have dropped to considerably lower levels than the general index numbers. The farm price of the Department of Agriculture stood at 136 for crops, 103 for live-stock, and 120 for the combination in 1923,⁵ while the Bureau of Labor Statistics' index of the price of farm products stood at 142, and that of all commodities at 154. The index of railway rates on farm products stood at 158.6 for 1923 on the same base of 1913.⁶ This latter point is noteworthy, since railway rates are the chief item standing between farm prices and wholesale prices at the chief markets.

It is difficult to believe that the other

⁵ The Agricultural Situation (U. S. D. A., multigraphed publication).

⁶ *Agriculture Yearbook*, 1923, p. 1177.

expenses of marketing between farm and wholesale market have risen so drastically as to cause all this discrepancy between these two price indexes. However, there is some statistical evidence to prove this tendency for prices to vary from central market prices as we go nearer the farms. As conditions create a "buyers' market," a tendency arises for "bargain prices" to appear at points near the surplus-producing regions. A general study of seasonal marketings and prices for storable crops indicates a greater price decline at harvest than can readily be ascribed to carrying charges. A Canadian study made in prewar days showed a marked tendency for Winnipeg and Liverpool prices of wheat to draw wide apart in the months in which the Canadian grain was flooding into the markets.⁷ Recent events have shown that the Argentine with its large supplies of meat pressing for outlet has seen prices much lower in comparison to world market prices than are the American prices.⁸

The Department of Agriculture also publishes data on total net value of production which, by a simple process of division, yield index numbers of farm prices on a completely weighted basis.⁹ The weighting shifts automatically from year to year as the relative output of various products changes. This gives a better index of what the farmer actually receives. These data are checked against census findings and give more weight to the prices obtaining at the seasons of heavy marketing than the index numbers referred to above which give an average of all months. When we take these total value data of the department for

crops alone and modify the index of the value for the increase in "mass of crop production" shown in the same table, we find an index of value or price of unit quantities of 152.2 on the base of 1913. This is considerably higher than the index of farm prices of crops referred to above, which was 136. Part of the discrepancy may be due to the fact that these bulk figures are affected by whatever shifting of production occurs from less to more profitable lines.

It is commonly argued that agricultural prosperity is impossible so long as the price level of units of farm products is not as much above the 1913 price level as the prices of other commodities are above their 1913 level. One writer even goes so far as to conclude that "real prosperity on farms" necessitates "a price level as high as the general range of prices at which the bulk of the indebtedness was incurred."¹⁰ The latter phrase refers at least partially to the large capital charges laid on the farms during the period of inflation at the end of the war.

Such conclusions seem unwarranted when viewed in the light of business experience in other fields. Many examples of real prosperity in industry could be cited from the past and the present. It is only necessary to point to the industry built up by Henry Ford, expanded during the war period of inflated prices, paying high wages today and selling its products, not only at a smaller purchasing power than in 1913, but at a lower purchasing power than the most pessimistic showing for agricultural products; in fact, Ford cars sell today for much less than prewar prices and yet Mr. Ford is reputed to have made himself among the nation's most wealthy men. Gasoline also sells today for low prices (even

⁷ Georgian Bay Canal Commission, Interim Report, 1917, p. 56.

⁸ Arner, G. B. L.: The Cattle Situation in Argentina (U. S. D. A., multigraphed publication).

⁹ *Crops and Markets*, Supp., March, 1924, p. 84.

¹⁰ Warren, G. F.: The Agricultural Depression, *Quar. Jour. Econ.*, Feb., 1924, pp. 183-213.

below the prewar levels) and yet the various leading oil companies are reported to be thoroughly solvent.

We are sometimes told that increased quantity of farm production has come because of the necessity for more units to sell at the lowered prices.^{9*} In other words, we must believe that increase in production has been the effect, not the cause, of low farm prices. Doubtless, many individual farmers, anticipating at sowing time a low price at harvest, have increased their sowings accordingly. Throughout the country as a whole, however, this has not been the situation. As the latest *Yearbook of Agriculture* states regarding the period of price decline, "Since 1920 the area of farm land and of improved land has increased very little, possibly not at all, and the acreage in crops has decreased since 1919."¹⁰ The increase in acreage since prewar days occurred while prices were rising rather than as the effect of falling prices. It is worthy of note that the acreage of wheat has declined continuously during these past years when wheat prices were comparatively low. On the other hand, in New England, where the farm price index of market milk stood at 156 for 1923 (on the basis of 1910-14) and butter at 158, the production of milk has increased very markedly.

The claim advanced at times that those now engaged work harder than was the custom in earlier days makes but little headway in the light of what is known of the hard toil devoted to farming in days gone by. Mechanical devices and better technique save much human energy today. It is a well-known fact in the East that one seriously disturbing factor in the milk market is the general desire to sell whole milk in order to avoid the use

and washing of the separator. It is asserted by some of those acquainted with the West that the wheat market has been flooded by farmers preferring the hard work of a few months to the year-round work required by diversified farming. The production of today calls for hard work, but proof is lacking that the toil is more burdensome than that of the past. Certainly no more people are employed to produce a larger quantity. It is hard to believe that the farming population increased its efforts per man enough to affect the increased production per man as shown by the statistics. It is more natural to suppose that the expenditure of millions of dollars these past few years to carry agricultural education to the farmers has had its effect and that the increased production has been the result of the work of brains as well as brawn.

Many writers fail to face the fact that unit prices alone do not tell the whole story of the farm income. Other writers admit the fact that the quantity of production affects income as truly as does price, but refuse to face the logical conclusion that the product of unit price and quantity, which constitutes the total income, is the real basis for judging the economic status of the industry.

An apparent justification for this attitude may lie in a narrow interpretation of the classical theory of increasing costs of farm production. If the cost of farm products always increases per unit of output as production increases, agricultural distress must exist when an increase has occurred in the quantity of production while unit prices of farm products have fallen in comparison to prices of other goods. In such circumstances, the greater the production, the greater the distress of the farmers. Nevertheless, even in such circumstances, the purchasing

^{9*} See p. 9.

¹⁰ *Agriculture Yearbook*, 1923, p. 437.

power of the industry (which is often hopelessly confused with that of those engaged in it) would still be determined by the total income. On the other hand, if, perchance, increased production and decreased costs per unit of product come together, real agricultural prosperity might come with a decreasing purchasing power of farm products.

It is generally admitted that there is a law of diminishing returns or increasing costs in agriculture. It is not true, however, that increased agricultural production always involves greater cost per unit of product. Greater application of labor and capital to land in certain conditions may give larger production with actually lowered costs per unit of product. This fact is commonly conceded by careful students when the amount of labor and capital employed is still small. As the amount of such application is increased, however, a stage is reached beyond which the cost per unit of product ceases to fall and starts to rise. These stages of decreasing and increasing cost appear as either labor or capital or both are applied with gradual increases while the agricultural technique remains unchanged. If the agricultural technique is improved while the application of effort is being increased, it must result that the stage where costs per unit begin to increase will be pushed further along in the intensification of production. Improved technique may very considerably extend the possibilities of increasing production per acre without increasing the cost per unit. Eventually a limit to this process must be reached. However, the combination of the fact that at any stage of agricultural technique there are limits within which greater effort will bring lower costs for the product and that there are great improvements available in the technique, makes it possible for the average farm situation

in a country like this to continue for a surprisingly long time in the stage of decreasing costs. Doubtless many fields in the country are now in the increasing cost stage. Certainly the time may be anticipated where the average farms of the country will be operated at increasing cost even with improving technique, unless other factors than the supply of farm products reduces our population growth to a pace slower than the advance in farming methods. The question for the point at issue, however, is the application of this law of cost variations to the present time and the average farming conditions in this country.

The recent history of this matter is not without interest. In spite of the high prices at the end of the war, the trend of food prices for the period from 1810 to 1920, as a whole, was distinctly downward.¹¹ It might be said that the rising price level in the twenty years before the war was merely a recovery from the over-violent drop in the preceding decades. Prices and costs are different matters, but in the course of a century they must keep pace with each other quite closely. Accordingly, we may safely say that the cost of food production in terms of dollars has declined throughout the past century as a whole. The dollar is not the ultimate standard of cost. Human effort is the ultimate standard. During this period units of human effort employed in industry received materially greater payment in wages in dollars. This is shown by wage data both at home and abroad.¹² Since food costs were falling in terms of dollars and the wages of human effort were rising in terms of the same measure of value, it must be conceded that food costs

¹¹ Hurlin, Ralph G.: *The Annalist*, July 4, 1921.

¹² Douglas, P. H.: unpublished studies. Kitchen, Joseph: *Trade Cycles Chart*, *The Times* (London), January 8, 1921.

were falling very materially in terms of the ultimate measure which is human effort. This portrays the cost of the purchase of food rather than the actual cost of production in terms of labor employed in farming.

The comparatively short period of rising food prices of this last quarter century did not reverse this trend in prices in terms of human effort. It did check the rise, however, at least temporarily. At the same time the rapid increase of farm land values appearing during that period indicates that a part of the increased price was going into increased farm profit rather than cost. Even in this last quarter of a century it would appear that the cost of food in terms of human effort required for its purchase had actually declined.

During the past century the percentage of population engaged in agriculture has fallen very materially.¹³ The supply of farm products has been increased to meet the growth of population, but a larger part of the workers has been drafted into the newer industries. In 1870 the agricultural workers were nearly 16 per cent of the population. In 1920 only a little more than 10 per cent worked on the farms. Since 1870 the product per unit of labor employed on the farms apparently has about doubled.¹⁴

During the past census decade the agricultural production increased by about 16 per cent,¹⁵ while the area of improved land was increased by only about 5 per cent and the persons employed actually decreased, according to the census, by about 10 per cent. This last figure is subject to some question on account of the change in the census

date. It must be recognized that the decrease in land and human labor employed per unit of product may be offset partially or wholly by changes in capital or outside services in the use of fertilizer, machinery, etc. It seems certain that the spectacular increase in productivity per man in the last half century as a whole is partially due to increased use of machinery or what might be called the indirect use of city labor. What influences have been at work in this direction in this last decade will be discussed in detail later in analyzing the farm expense account. It may be noted in advance of this discussion, however, that there is no evidence that changes in the use of such "outside services" have wiped out the economies in the direct use of labor and land.

There are very many opportunities today for decreasing the cost of production of farm products while expanding their output, and that without resort to the time-honored custom of bringing into use new supplies of virgin soil. Some of these economies lie in the production of crops, some in animal husbandry and some in better combinations of the two. Many of them are already partially utilized in practical farming. A careful survey of the situation shows, however, that many known economies are but imperfectly utilized in practice at present. Inertia, lack of knowledge and the fact that decreased cost per unit of product is of less importance to the farmer than increased profit per acre, keep economies from being adopted as rapidly as they are discovered. It is fortunate that there are such brakes on the wheels of progress. An unduly rapid adoption of known better methods might cause such an increase of production as to ruin the farmers through reduced prices. Many known improved farming practices are in process of gradual

¹³ Babson, R. W.: *Journal of Farm Economics*, January, 1924, p. 43.

¹⁴ *Agriculture Yearbook*, 1923, p. 463.

¹⁵ Computations of W. W. Stewart and E. E. Day.

adoption; many improvements will yet, doubtless, be discovered.

In the matter of animal husbandry much has been accomplished in increased meat production per thousand of the livestock population in this last generation through younger slaughtering alone. This materially reduces the feed consumption per unit of meat produced. Such economies are by no means exhausted. In milk production the census data would indicate that the economies in production coming from the use of larger producing cows were but very imperfectly utilized as yet. It has been calculated that a cow producing 300 gallons of milk a year requires 4.7 pounds of "starch equivalent" to produce 1,000 calories in the form of milk, while a cow producing 800 gallons requires only 2.9 pounds for the same energy equivalent in milk.¹⁶ Not only does the cost of milk in terms of feed consumed decrease with better yielding cows, but the cost decreases just as truly in terms of money spent per unit of production.¹⁷

In the matter of crop production, similar opportunities exist for cheapening unit costs of production while expanding the output. The latest (1923) *Yearbook of Agriculture* contains a most instructive chart on the relation between costs per ton and yield per acre of sugar beets as shown by cost surveys in Utah and Idaho.¹⁸ It is shown that a small increase in cost per acre is accompanied by such an increase in yield that the costs per ton are very much lower where the yield has been increased. Surveys of cotton farms indicate that this result is not confined to one crop.¹⁹

¹⁶ The Food Supply of the United Kingdom, by a committee of the Royal Society, pp. 27, 28 (Cd. 8421).

¹⁷ *Bulletin* No. 7, Conn. Agr. College, Extension Service.

¹⁸ *Agriculture Yearbook*, 1923, p. 199.

¹⁹ *Department Bulletin* 648, U. S. D. A.

The results of fertilizer experiments show that the proper use of this aid to production may readily decrease the cost per unit of output before reaching the stage of decreasing returns. The experiments conducted at the Ohio Agricultural Experiment Station show clearly in the case of wheat production that the moderate use of fertilizer materially reduces the cost of production per bushel.²⁰ Limits to the possibilities of this efficiency exist of course, but the country as a whole is using fertilizer very sparingly as yet. The average national agriculture is easily within the stage of increasing returns from the use of this one factor in production.

Improvements in the combination of various farm enterprises are also contributing to the efficiency of our national agriculture. One of the outstanding efficiencies which have been finding their way into our agriculture and contributing to the lowered costs per unit is the increased plowing up of pasture lands, thereby making better combinations between the raising of crops and animal husbandry. The British scientific agriculturalists have for years been pointing out the increased economy which results from the conversion of pasture into plowland.²¹ An acre of cultivated land can normally produce as much feed for livestock as an acre of the same land in pasture, and can at the same time produce a material amount of food for direct human consumption. The British farmers do not take kindly to this advice. The American farmers, however, appear to have made considerable progress in this direction. More human labor per acre is required thereby in the same stage of agricultural technique, but the British scientists claim that with their labor costs, the total result gives a net profit and smaller

²⁰ See page 238, *infra*.

²¹ Middleton T. H.: various publications.

cost for the resulting increased products.²²

There are many opportunities today for decreasing the cost of agricultural products while increasing their output. Moreover, it has also been shown that the nation-wide tendency even of late years has been for increased production with the use of less land and labor per unit of output. The result has been that the long-time trend is for food prices to fall rather than rise in terms of fundamental units of cost required to purchase the food. We shall not immediately conclude that there has been such a decline in the cost of production as to give greater profits to the farmers in spite of falling prices. We do suggest, however, that this collateral evidence is so strongly against an unproved assumption of hardship as the certain accompaniment of declining prices that the whole case of farm profits should be investigated on its merits and subjected to the tests which would be applied to any other business. We shall, accordingly, look into the question of the real agricultural income and the various expenses which must be charged against it.

TOTAL AGRICULTURAL INCOME AS A CRITERION OF PROSPERITY

The best basis for estimating the economic status of the farm business itself, as an average for the whole country, is found in the estimate of the Department of Agriculture of the value of the total production of farm products, excluding duplications. These data eliminate the difficulty introduced into some estimates by the double counting of animal products and the crops from which these were produced. The duplication involved from the transfer of animals and feed from one farm to another directly or through

commercial channels is also eliminated. We have the value of the net out-turn of the business of farming as such, including the food and other supplies used by the farmers from their own farms. The estimate is the true figure for the total income of the business of farming, excluding transfers and duplications. It is checked against census data and must be accepted as reasonably reliable. It takes account of increased quantity of production as well as price. The regular compilation upon which index numbers are constructed includes only items used in the census list of 1919. The inclusion of additional items which have been estimated for the last few years would slightly increase the index of 1923 over 1919.

INDEX OF VALUE OF FARM PRODUCTS ON BASIS
OF 1913 PRICE LEVEL ^a

Year	Crops	Animal Products	Total Excluding Duplication
1913	100.0	100.0	100.0
1914	99.7	101.8	99.5
1915	112.6	104.1	109.1
1916	147.6	117.1	125.7
1917	219.8	157.4	188.0
1918	233.7	219.3	235.0
1919	247.9	195.7	231.7
1920	174.5	169.1	179.9
1921	111.0	124.0	125.5
1922	143.4	131.5	145.0
1923	160.2	138.6	156.2

The index of this farm production value, or business income, stood at 125.5 for 1921, 145 for 1922, and 156.2 for 1923. These figures are the best data available upon which to base the purchasing power of the farming business itself for goods, services and investments, whether spent directly by the farmers or their creditors. When

²² Middleton, T. H.: *Food Production in War*, p. 341.

^a See p. 9.

deflated by the change in the purchasing power of money as shown by the general wholesale number of the Bureau of Statistics, they become 85.4 for 1921, 97.3 for 1922, and 101.4 for 1923. To the extent to which the change in the general wholesale price index depicts the changing value of the dollar, these last figures show the purchasing power of the business of agriculture for goods, services, etc., as related to the status of 1913. They show a serious lack of purchasing ability in 1921, but a practically normal situation in the last two years. Preliminary estimates indicate that conditions have improved still further in 1924. And it must be emphasized again that 1913 was a comparatively prosperous year for agriculture.

These figures illustrate the deflated ability of agriculture to pay for goods for current and capital use and services whether private or public as obtained through taxation. Viewed from the standpoint of those desiring to supply this industry with goods or services, the figures as they stand are probably most satisfactory as the purchasing power of the business of agriculture. Each class of outsiders must also consider how the change of price for his goods or services compares with the changes of the general wholesale index number.

Viewed from the standpoint of agriculture itself these figures leave much to be desired. An index of the price of current requirements of the business of agriculture is very much needed. Dr. Friday made a suggestion in this direction in 1922.² Judging from certain raw data on prices of these requirements in the *Yearbook of Agriculture*, the department is probably considering such a contribution. This index number should include the prices of all commodities required for the business of farming, using the type of price on

which the goods are usually acquired, for some goods are purchased at farm prices, some practically at wholesale and many at retail. Feed and feeding stock are purchased on a type of price quite dissimilar from the basis of the general index of retail prices, which covers consumers' goods. Suitable weightings, of course, should be developed. It should also be made possible to include or exclude at will the prices of farm products purchased or transferred as raw material in the industry. These should certainly be included when comparisons are made with unit prices or total incomes from individual farms.

Unfortunately, such index numbers have not yet been constructed. The Bureau of Labor Statistics' retail index is useless for this purpose. Their wholesale index leaves much to be desired, nor is it safe to modify this before using it. The low item of farm products might be eliminated for some uses, but, if so, the high items of fuel and lighting should also be dropped. These latter items apply almost exclusively to personal rather than business expenditures in farming, unless for gasoline as a fuel, the index number of which is phenomenally low. Moreover, farm products constitute one of the greatest items of expense in the business.

Since it is impossible at present to construct an index number for farm requirements as they exist, it is best to leave this stage of the matter as it stands and use the total income deflated by the use of the wholesale price index number. Thus we conclude that the figure of 101.4 is the nearest approach possible at present to a satisfactory index of the total purchasing power of agriculture as an operating business, including with direct purchases the indirect demand for outside goods and services through the media

² See p. 7.

of taxes and payments for interest and discharge of capital obligations.

An index of the direct purchasing power of the whole business of agriculture may be estimated after subtracting the interest or indebtedness and the farm taxes from the gross income. This leaves the amount available for direct expenditure by owners and operators for commodities and services, personal and business combined. Taxes on farm property in 1923 are estimated to have been about \$850,000,000, against \$344,000,000 in 1914.²³ Interest on mortgages and other debts in 1923 has been estimated to amount to \$952,000,000.²⁴ The best estimate available for interest payments in 1913 amounts to \$228,000,000.²⁵ Assuming no change in taxes between 1913 and 1914, and subtracting the sum of these items from the total value of farm products given above, we find the index of the amount available for direct expenditure from farming income by operators and owners in 1923 to have been 142.3 on the basis of 1913. Deflating this index number by the wholesale price index of all commodities we find an index of the ability to make direct purchases in 1923 amounting to 92.4.

Neither of these indexes separates the personal purchasing power of the farmers themselves. To arrive at a satisfactory index of this latter it is necessary to subtract all current operating expenses, as well as taxes and interest, from the total income.

NATIONAL FARM EXPENSES

Comprehensive data on the national farm expenses, unfortunately, are not available for a series of years reaching

back to prewar days. The Department of Agriculture has recently made estimates for the last five years. Even these lack sufficient explanation to render them of the maximum value for our use. It is possible, however, to estimate the amount in 1923 and in 1913 of approximately 90 per cent of the total gross expense. It is also possible to make a fairly close estimate of the weight which each bears of the total national farm expense.

The basis for our weighting of the influence of each item in the total expense will be based on the summary of 16,183 farm reports made to the Department of Agriculture for the year 1923.²⁶ In some cases the proportion of the expense held by certain items in this summary is higher than appears to be proper in an average for the whole country in the light of other evidence. Corrections have been made accordingly. The final conclusions show that after taking the cost of feed and feeders from the total, the remaining disposition of income was divided as follows: seed, 2.25 per cent; fertilizer, 3.4 per cent; machinery, 6.25 per cent; hired labor, 10 per cent; operator and family labor, 49 per cent; and taxes, 7 per cent. The remainder is taken up by miscellaneous expenses and interest on investment.

One of the very largest items of farm expense is already provided for when the income data used exclude the feed consumed by animals and include only the net sales of livestock. All expense for feed and feeders is thus provided for, excepting the cost of getting these commodities from one farm to another when such farm to farm transfers are made. These marketing expenses are a proper expense item in the national farm accounts. Transportation costs are the large item here. The index of transportation costs for agricultural

²³ *Agriculture Yearbook*, 1923, chart on p. 8.

²⁴ *Crops and Markets*, Supp., August, 1924, p. 286.

²⁵ National Bureau of Economical Research, *Income in the United States*, pp. 54 and 303.

²⁶ *Crops and Markets*, Supp., July, 1924, p. 221.

products for 1923 stood at 158.6.⁶ Most of the other marketing charges are on the commission basis and should be low since the prices of farm products have been low. The only light on the amount of such movement is the data on feeder shipments. Complete data on such shipments are not available before 1917. No upward trend is apparent since that year. It seems safe, accordingly, to assume that the total cost of such marketing services has followed quite closely to the changes in the total agricultural income.

The expense for seed is not written off in the farm income data given above. The farm price of seed can be assumed to follow the farm price of crops. As we have already seen, the farm crop price index derived from the income data stood at 152 in 1923. The area devoted to the chief crops increased by 5 per cent in the decade. Accordingly, the index of expenditures for seed in 1923 may be placed at 160, the expenditure in 1923 at \$274,590,000 and \$171,618,000 in 1913.

The expense for fertilizer is a negligible item on the western farms. In the East and South, however, it is an appreciable factor. The index of fertilizer prices at wholesale was 110 for 1923. These are not prices at the farms, but they do involve the element of transportation charges. Since there is evidence that profits have been hard to get in selling to the farmers in recent years,²⁷ it is quite improbable that marketing costs in fertilizer and machinery are particularly high. Any

possible under-estimate of expense in this direction for fertilizer will be offset by an over-estimate in the case of machinery where the index of wholesale price is high.

The increase in quantity of fertilizer purchased was negligible in the decade, although the actual plant food per ton of the fertilizer did increase noticeably.²⁸ The increased expense in fertilizer purchase in the decade may be estimated at 10 per cent. The total expense for fertilizer will be taken as \$414,936,000 in 1923 and \$373,443,000 in 1913.

A fairly close estimate can be made of the change in the expenditure for agricultural implements and machinery. During the years 1918 and 1919 the production and domestic sale of such equipment is reported by the trade as being subnormal. By 1920 it had risen to unusually high proportions. In 1920 the railways of the United States moved 3,325,921 tons of "agricultural implements and vehicles other than automobiles." In 1921 the figure fell to 1,666,536. In 1922 it was 1,719,680 and in 1923 it was 4,598,382 tons.²⁹ Officials of the International Harvester Company estimate that the unit prices in 1923 averaged 68 per cent higher than in 1914.³⁰ These figures in themselves indicate an agricultural purchasing power amazing in the light of the popular conception of the continuation of the farm depression into 1923.

In 1923 the estimates of the Department of Commerce show a domestic sale by manufacturers of such equipment amounting to \$311,823,230.³¹ Similar data for 1913 are not available. The census showed a value of \$164,086,835 for such manufactures in 1914.

⁶ See p. 8.

²⁷ A recent issue of the *Standard Daily Trade Service*, published by the Standard Statistics Company, shows a deficit of .75 per cent in the case of fertilizer companies and a net profit of only .75 per cent in the case of farm machinery companies, as compared with an average profit in a large group of industrials of 6.5 per cent on the investment for the average of the last three years.

²⁸ P. 265, *infra*.

²⁹ I. C. C., *Freight Statistics*.

³⁰ Eversen, J. A.: *Farm Equipment Prices*.

³¹ Department of Commerce, Press Release, October 16, 1924.

In that year the exports amounted to \$21,649,523. These data are not absolutely comparable, nor do they definitely show prices at the farm. They indicate, however, that the farmers spent 118 per cent more for agricultural machinery and implements in 1923 than in 1914. Since the small purchase in 1921 and 1922 and the larger purchase in 1920 offset each other in their effect upon the stock of machinery on hand at the beginning of 1923, we shall not encounter a large error from the puzzling question of the use of machinery owned at the beginning of the two years in question. The figure of 118 per cent increase may be assumed to apply without great error to the expense of the machinery and equipment item.

Automobiles and trucks are not included in the foregoing. Prices on Fords in 1923 were 62.7 per cent of the 1913 level.³² It is certain that the use of this type of machinery has increased greatly, but only 30.7 per cent of farms reporting had autos, and 2 per cent had motor trucks in 1920.³³ A large portion of the expenditure for cars is for the personal use of the farmers, including personal shopping as well as pleasure. A great amount of the business expense is properly chargeable to marketing costs and, consequently, should strictly speaking not be charged against the income based upon prices at the farms themselves. However, it doubtless is a fact that the use of automobiles has helped the strictly farming business and that increased costs in this direction have saved other costs. Certainly the increased amount of the business use of cars has fully offset the comparative decline in their price and the price of gasoline. To be conservative we may assume that the

expenditure for this type of machinery has followed the trend of that for other farm machinery noted above.

Costs connected with machinery and other equipment have been estimated at 6.25 per cent of the income in 1923. On that basis this expense was \$762,748,000 in 1923 and \$334,539,000 in 1913.

Labor expense takes a large share of the total farm income. These labor charges appear in two forms: wages for hired labor, which must be paid before the operators' income can be determined; and the value of the labor of the operator and his family, which must be counted before the cost of farm products can be estimated. The latter item is decidedly the larger on the typical American farm.

The index of farm wages, recently constructed by the Department of Agriculture, stood at 155 for the year 1923.³⁴

The amount of labor used on the farms is a matter on which we need more certain knowledge. Unfortunately, for this purpose, the census was taken at an earlier date this last time than in 1910. The results show a total of 10,953,158 employed in "agriculture, forestry and animal husbandry" in 1920 against 12,659,082 in 1910. The main decrease was in the hired laborers. Comparisons between the census estimates of the total amount paid for wages in 1909 and 1919 and the Department of Agriculture estimates of farm wage rates lead us to question if there was any serious decline in laborers during the period. There are many indications that there have been heavy migrations from the farms both during and since the war. There is no proof, however, that the total agricultural population has declined. Data of the Department indicate that the supply of farm labor was fully as short

³² Ford, Henry: *My Life and Work*. Also recent quotations.

³³ Abstract of the 14th Census, p. 748.

³⁴ See p. 8.

in 1923 as in 1919. We shall adopt the conservative conclusion that probably the number of laborers has remained about constant during the decade and that post-war declines have offset any slight increase in farm operators up to 1919.

On this basis the expense for hired labor, which we estimate at approximately \$1,220,400,000 in 1923, was \$787,355,000 in 1913. The allowance for operator and family labor in 1923 would be \$5,979,960,000 and \$3,858,038,000 in 1913.

Estimates have already been given for tax payments and interest on mortgages and bank loans in the two periods. It is necessary also to make an estimate of the interest on the total investment, including that part of the owners' equity which is actually based upon the business of farming. Since land values are still above prewar levels, and since before the war a material portion of the land prices was based upon speculation, it will be necessary to make allowances for this. The Department of Agriculture estimates the total value of farm property, including working capital in 1923 at \$59,409,000,000.³⁴ The National Bureau of Economic Research puts the figure for 1913 at \$45,227,000,000.³⁵ According to the census about 70 per cent is land value and 14.6 per cent buildings. We shall assume that one-half of this latter belongs to the personal dwelling. To the extent to which this is a business investment there are offsets in other items of investment, such as autos, which are personal investment. We shall exclude 7.3 per cent of the total capital entirely as being devoted to personal rather than business purposes. The remainder other than land is allowed an inter-

est of 5 per cent. The value of the land is allowed an interest rate of 3.5 per cent. This is the average rate of rental charge and is the competitive rate paid for the use of the land in production.³⁶ Its use to represent the interest on land eliminates the influence of the speculative portion of the land value in so far as this is possible. The changes in the major items of expense are thus accounted for. Since there has never been any census of total farm expenses, we shall not attempt to cast up an actual balance sheet for any year's operations. All national farm balance sheets which have been estimated by various statisticians have evidence of a larger probable error than the margin left for profit. It does not seem that there is sufficient exact evidence as to the proportion which each and all of these expense items bears to the total income to warrant any definite conclusion as to the net profit. However, the evidence is not so weak as an index of change in the separate items and total expense from one year to another. The "miscellaneous" items are always a matter of guess. We have presented no data regarding them and shall assume that the trend in the major known expense items portray the trend for the sum of all items. We shall venture, accordingly, to disregard the expenses as absolute figures and present the estimates of the change in these items and their various totals on the basis of relations.

The operating expenses of farming, including wages assigned to the operators and their families as well as hired labor, show an index of 161.7 for 1923 when taxes are included and 156.6 when taxes are excluded. These compare slightly unfavorably with the index of total farm income which was 156.2.

The complete business status of farming appears when all operating

³⁶ Gray, L. C.: *Agricultural Economics*, p. 252.

³⁴ *Crops and Markets*, Supp., August, 1924, p. 286.

³⁵ National Bureau of Economical Research, *Income in the United States*, p. 63.

expenses and fixed charges are considered. Including operator and family labor in the operating expenses and using the interest charges explained above on the total business investment, we find an index of such total costs in 1923 of 155.3. The probable error in the comparison is such that it is unwise to emphasize this small apparent improvement in position. It is plain, however, that farming as a business in 1923 did not compare unfavorably with its situation in 1913.

It is interesting in passing to note that when this cost index of 155.3 is compared with an income index of 156.2 and a general price level of 154, and when we call to mind the fact that the quantity of agricultural production has increased materially, it must be concluded that the increased production in the decade has been accomplished with a marked decrease in cost per unit of product.

The comparative status of the whole population engaged in agriculture is shown by the trend of expenses excluding the labor items and interest other than payments on mortgages and bank loans. Such expenses rose to 224.1 in 1923 when taxes are included, and to 217 when taxes are excluded. It is assumed here that all interest on non-mortgaged land accrued to the benefit of the farmers. The less safe assumption that mortgages are held only by outsiders, unfortunately, cannot be avoided. These conclusions indicate that the farming population as such had an income with which to pay for personal expenses and taxes amounting to 146 in 1923 as compared with 100 in 1913. We lack an index of cost of living on farms with which to compare this to estimate the purchasing power of the farming population. The use of the Bureau of Labor Statistics' index number of the retail cost of food, which also stood at 146 in 1923, would prob-

ably misrepresent the situation. It also is fruitless to attempt to compute an index of the purchasing power of farm wages.

The status of the owners and operators as such is shown by comparing the total expenses paid by such operators with their total income. These expenses include all known items excepting interest on the personal equity of the owners and operators and wages assigned to the operators and their families. Such expenses rose to the relative figure of 199 in 1923. When comparisons are made with the total income it is apparent that the index of the income accruing to this class was 138.6 in 1923. No attempt will be made to isolate the item of rent and make separate showings for the various farming groups other than the hired laborers.

It is thus apparent that the purchasing power of the business of agriculture had returned to normal by 1923 but that, owing to high taxes, interest charges and other expenses, the position of the people engaged in farming was, as a whole, depressed. The laborers fared better than the farmers themselves. The farmers, themselves, on the average were still suffering from much poorer returns from actual farming operations than in 1913. Moreover, up to 1920 they had been enjoying an increase in their land value amounting to about 2 per cent a year.³⁷ This speculative situation has been reversed and in the place of a gain a very real decline is going on in nominal land values.

A great deal of the trouble in the average situation comes from the untypically bad situation in the western section where farming was pushed beyond the true "extensive margin" at the end of the war. It is quite apparent, in view of the ability of the

³⁷ Gray, L. C.: *Agricultural Economics*, p. 253.

old lands to produce all food needed at present, even at decreasing costs, that the expansion onto these new poorer lands was not justified. The country has made a very expensive mistake by over-rapid expansion of the farming area in these regions. How much of the trouble is localized in this western area would be difficult to determine, but conditions there are so bad comparatively that were the data for that section taken from the national average it is safe to say that the remainder would show a good degree of prosperity for all the well-directed agricultural efforts.

The year 1924 will certainly show an improvement over 1923. The records are not yet sufficiently complete to warrant an attempt to bring the foregoing data for 1923 up to date. However, such material as is available would indicate the probability that sufficient improvement has taken place to bring even the actual income of the operators up to a prewar purchasing power. If the final reckoning for the year supports this preliminary estimate, it may be said that the prosperity of the business of agriculture has returned to a reasonably high level.

The Purchasing Power of the Farmer's Dollar From 1913 to Date

By A. B. GENUNG

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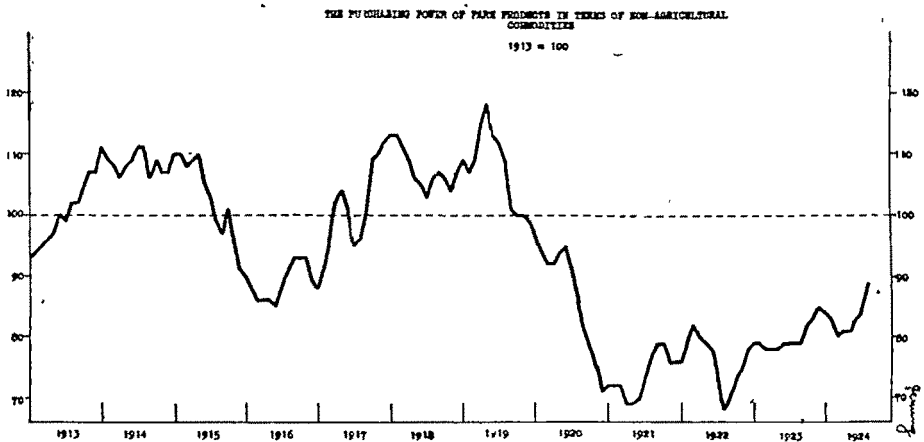
THE farmer's dollar will buy, of course, exactly as much as anybody else's dollar—once he gets it. It would be more strictly accurate, therefore, to talk about the purchasing power of the farmer's products. However, the "dollar" form of expression is the popular one and nobody is likely to misunderstand that the discussion herein relates to the general position of agriculture as reflected by the exchange value of its products.

The past ten years have had somewhat the same bearing on agricultural history as an earthquake has upon geologic history. All those economic processes which normally spread themselves over long periods of time and occur in mild degree were precipitated by the war period as sudden, violent phenomena.

From the late nineties down to 1918, the period had been one of slowly rising prices. That was a chapter of

agricultural stabilization, of gradually improved production, of increasing property values, of moderate farm prosperity. During this time agricultural products exchanged for industrial products and services on a plane of comparative stability and slowly increasing advantage.

With the advent of the war in 1914, a new chapter opened. The first shock of war merely sent the price structure into violent fluctuation: wheat prices, for example, abruptly went up while cotton just as abruptly went down. By 1916, however, the situation had crystallized and prices had really begun to mount. Thus continued for four years the feverish experiences of wartime: an unending pressure for greater production, soaring price level, expansion, finally inflation and widespread speculation. During 1917, 1918 and 1919, farm products sold at relative advantage. Those three years constituted the major



wartime period of exchange favorable to agriculture.

Then, in 1920, came the smash. Deflation pricked the balloon and drastic curtailment of consumption, both here and in Europe, squeezed it limp. Prices collapsed. Raw materials and especially farm products suffered severely; prices of those commodities fell first, hardest and farthest. The exchange value of the farmer's products sank to such depths of disparity as to render his situation one of national concern.

EXCHANGE POSITION OF FARM PRODUCTS

In recording the relative exchange position of farm products, there are several angles from which measurement might be made. One way would be to simply make comparisons between the ratios of farm receipts to expenses, one year with another. A difficulty herein lies in the lack of adequate data over any length of time. Another way would be to subtract from gross farm income the amounts of taxes, interest and fixed charges and let the balance represent buying power for all other goods and services during a given

year. Another way is by straight comparison of unit prices.

The farmer sells all his labor in the form of his products. The prices of his products are, therefore, a sensitive gauge as to his status in the general markets. While they do not measure the actual proportions of income, nevertheless the fluctuations in price of a unit of farm products, when set off against the fluctuations in price of a unit of products bought by farmers, give a fairly reliable index of relative position from time to time. The actual figure representing purchasing power at a given time may be only approximately indicative, but the trend over a period is accurately reflected and the latter is the significant thing.

Table I shows the index numbers of prices, at the farm, of 30 agricultural products. This is the "new" price index of the Department of Agriculture and is somewhat more comprehensive than the price index which the Department previously used. It is constructed on a five-year base, August, 1909, to July, 1914, but by a coincidence the year 1913 equals 100 and is so taken here:

TABLE I—INDEX NUMBERS OF PRICES OF FARM PRODUCTS
1913=100

	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
January.. . . .	95	104	100	104	140	194	200	219	135	114	134	134
February.	96	105	101	106	148	197	194	221	128	118	136	134
March...	97	104	100	108	159	199	197	222	123	123	136	128
April....	98	104	102	110	176	200	207	230	115	123	137	128
May..	98	104	104	111	188	198	215	235	112	127	135	127
June	99	104	101	112	188	196	216	234	110	128	133	128
July...	99	103	99	113	185	197	222	224	111	126	130	130
August.	101	104	97	117	183	208	222	209	116	120	128	137
September	103	102	97	123	184	207	208	194	118	119	130	129
October.	104	98	101	128	187	204	206	178	120	123	132	136
November	104	96	99	137	187	200	209	158	116	126	133	..
December	103	97	100	139	191	201	212	140	115	131	135	..

Table II shows index numbers of prices, at wholesale, of non-agricultural commodities. This is the "all commodities" index of the Bureau of

Table III shows the purchasing power of farm products in terms of non-agricultural commodities. It is obtained by dividing each index num-

TABLE II—INDEX NUMBERS OF WHOLESALE PRICES OF NON-AGRICULTURAL COMMODITIES
(Bureau of Labor Statistics "all commodities," excluding farm products and food)
1913 = 100

	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
January . . .	102	94	91	116	160	172	184	227	188	150	170	160
February . . .	102	96	92	120	163	175	181	234	178	149	172	162
March . . .	102	96	93	126	167	179	180	240	171	150	175	161
April	102	98	94	128	172	183	180	250	166	153	176	159
May	101	96	95	129	180	186	182	250	162	161	172	157
June	99	95	96	132	187	187	191	246	158	164	168	155
July	100	93	96	129	194	191	198	246	152	172	165	154
August	99	94	98	128	190	192	204	242	150	176	163	154
September . .	101	96	100	132	185	194	205	240	149	170	164	153
October	99	90	100	137	172	192	206	228	152	169	161	153
November . . .	97	90	103	148	170	192	210	210	152	169	160	..
December . . .	96	91	110	156	170	188	215	197	152	168	158	..

Labor Statistics, from which farm products and food have been excluded.

Farmers actually buy their required articles at retail, but reliable data on such retail prices are not yet available. The next best thing to use as basis for comparison is this wholesale price series of non-agricultural commodities here given above.

ber in Table I by that for the corresponding month in Table II. (See Table III below.)

Table IV shows relative purchasing power, during September, 1924, of 10 principal agricultural products in terms of certain groups of industrial commodities. The former are based on United States average prices at the farm.

TABLE III—THE PURCHASING POWER OF FARM PRODUCTS IN TERMS OF NON-AGRICULTURAL COMMODITIES
1913 = 100

	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
January	93	111	110	90	88	113	109	96	72	76	79	84
February	94	109	110	88	91	113	107	94	72	79	79	83
March	95	108	108	86	95	111	109	92	72	82	78	80
April	96	106	109	86	102	109	115	92	69	80	78	81
May	97	108	110	86	104	106	118	94	69	79	78	81
June	100	109	105	85	101	105	113	95	70	78	79	83
July	99	111	103	88	95	103	112	91	73	73	79	84
August	102	111	99	91	96	106	109	86	77	68	79	89
September . . .	102	106	97	93	100	107	101	81	79	70	79	84
October	105	109	101	93	109	106	100	78	79	73	82	89
November . . .	107	107	96	93	110	104	100	75	76	75	88	..
December	107	107	91	89	112	107	99	71	76	78	85	..

The latter are the Bureau of Labor Statistics groups of commodities at wholesale.

This gives an idea of the relative status of certain important key products this fall. It reflects the current relatively strong position of wool and cotton producers; the depression in which cattlemen are engulfed; the disparity which is just now pulling

price level is less important than that his products exchange on a par with others.

There is one important case, however, wherein he is concerned with the absolute level of prices. About 20 per cent of all farm expenditure is for taxes and interest. The exchange value of agricultural products in terms of taxes and interest is now so low as

TABLE IV—RELATIVE PURCHASING POWER
(At September, 1924, Farm Prices)
1913=100

IN TERMS OF	OF A UNIT OF									
	Cotton	Corn	Wheat	Hay	Pota- toes	Beef cattle	Swine	Eggs	Butter	Wool
All commodities	120	124	98	77	84	63	76	111	95	143
Cloths, etc.	96	100	79	62	68	51	61	89	76	114
Fuel, etc.	116	110	87	68	75	56	68	98	85	127
Metals, etc.	140	145	114	90	99	73	89	129	111	166
Building materials.	105	108	85	67	74	55	67	96	83	125
House-furnishing goods.	105	108	85	67	74	55	67	96	83	125

the Corn Belt away from hogs and into corn; the return nearly to par of the Wheat Belt; the rather unfavorable situation of hay and potato growers.

In so far as the farmer's financial outlay is for goods and wages, his chief concern is that there be no disparity between prices of his products and those of other things. The general

to be a very serious matter in parts of the United States. If the general price level should continue to decline, it would lay increasing handicap upon the men who are obliged to meet obligations contracted when prices were higher—that is, when dollars were more numerous. The relationship to the prewar status is indicated in Table V.

TABLE V—RATIO OF FARM PRODUCT PRICES TO TAX AND INTEREST PAYMENTS

Year	*Total Farm Tax and Interest Payment (Millions)	Index Numbers of Tax and Interest Payment	Index Numbers of Prices of Farm Products	Ratio of Prices of Farm Products to Tax and Interest Payment
1914 . . .	\$755	100	100	100
1920 . . .	1,457	193	201	104
1921 . . .	1,684	223	114	56
1922 . . .	1,749	232	125	53

*See Yearbook U. S. Department of Agriculture, 1923, p. 8.

IN CONCLUSION

To sum up, the exchange position of agricultural products was moderately favorable to farmers in the years immediately preceding the war. Compared with the year 1913, their indicated purchasing power was relatively high in 1914; sank below par in 1915 and continued so during 1916; rose above par in the summer of 1917 and continued relatively high during 1918 and 1919; plunged to serious depths in the spring of 1920 and has continued low since that time. The trend has been one of slow improvement during the last two years but the situation, as it stands, still spells serious handicap to agriculture. It is particularly severe on that generation of younger men who, by reason of having been born at

a certain time, arrived at the status of farm ownership during the period of inflated prices and are now struggling with a load of taxes and interest which has even increased as the dollars wherewith to pay have become scarcer.

Judged by prewar conditions, it appears that the net effect of the period from the beginning of the war to the autumn of 1924 has been adverse to agriculture as a whole. The most significant material effects so far are a general deterioration in the farm productive plant, and a redistribution of farm population. The ultimate effects will include a decline in per capita production to the point of forcing a restoration of farmer purchasing power and another general readjustment in the relationships between agriculture and urban industry.

Income from Agricultural Production

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IT is the purpose of this paper to discuss the changes that have taken place in income from agricultural production during the past fifteen years and to analyze especially the changes in post-war agricultural income.

Recent data published by the Department of Agriculture together with the income studies of the National Bureau of Economic Research furnish the basis for a broad survey of agricultural income before, during and after the war. From the two studies it is possible to estimate the changes that have taken place in:

(1) The rate of return on all capital employed in agriculture;

(2) The rate of return on the capital owned by all farm operators (owners and tenants) as distinguished from the capital owned by non-farmers;

(3) The rewards for the operator's labor, risk and management;

(4) The distribution of the operator's income.

These phases of agricultural income will be discussed in turn.

THE RELATION TO NATIONAL WEALTH AND INCOME

It is necessary, at the outset, to have in mind the relation of agricultural wealth and income to the wealth and income of all industries. The question often arises, does agriculture earn its fair share of the national income? The answer must, of course, depend on a definition of "a fair share." Should "a fair share" for agriculture take into account the fundamental differences between agricultural and other

industrial enterprises? Should one, for instance, take into account (a) the average investment per person engaged in agriculture and the average investment per person engaged in other industries, or (b) the relative amount of labor and managerial services contributed to the national output by the average person engaged in agriculture and the average person engaged in other enterprises, or (c) the portion of national wealth represented by agricultural wealth? It is obvious that attempts to answer these questions would lead into controversial fields. It is, however, of some value to note the available meager data on the latter of these criteria of "a fair share," namely, the relation of national agricultural wealth and income to total national wealth and income.

During the past quarter of a century our national wealth, as estimated by the Bureau of the Census, increased from 88.5 billion dollars in 1900 to 186.3 billion in 1912, and to 320.3 billion in 1922 (Dec. 31). In these intervals the value of all agricultural property increased from 22.1 billion dollars in 1900 to 49.8 billion in 1912, and to 64.3¹ billion in 1922. Expressed as

¹ For these comparisons an estimate has been made of the value of farm land and buildings and subtracted from the original Census Bureau estimates of real property and improvements taxed. The estimated value of land and buildings is on the basis of the agricultural census returns adjusted according to changes in land values as reported by crop reporters to the Department of Agriculture. The 1922 value of agricultural wealth includes an estimate of \$1,700,000,000 valuation of autos and trucks on farms and \$500,000 valuation of farm products on hand.

percentages of total national wealth these estimates for agriculture are respectively 25 per cent, 26.7 per cent and 20 per cent. The decline in the relative position of agriculture from 26.7 per cent of the total wealth in 1912 to 20 per cent in 1922 is due almost entirely to the deflation in the values of agricultural real estate and equipment.

The contribution that agriculture makes to the total national income is indicated by the studies of the National Bureau of Economic Research. In the five years preceding the war, when agriculture represented 26.7 per cent of total national productive wealth, it contributed only \$5,391,000,000, or 16.8 per cent of the total national income of \$32,173,000,000. With the exception of the factory group, which produced 21.4 per cent of the total national income, agriculture was the largest contributor. In 1919, the last year for which Dr. W. I. King's estimates are available, agriculture produced \$14,835,000,000, or 22.8 per cent, of a total for all industries estimated at \$65,000,000,000. Agriculture's share of the national wealth for that year has not been estimated, but it was only 20 per cent in December, 1922. It seems possible, therefore, that agriculture in 1919 earned a share of the national income approximately equivalent to its share of the national wealth.

Whether agriculture today is earning a share commensurate with the portion it represents of national wealth is not ascertainable. There can be little doubt, however, that the "equilibrium" reached about 1919 was upset by the precipitous decline in commodity prices and by the continued spread between agricultural and non-agricultural prices. There is sufficient evidence in studies of post-war agricultural earnings to indicate that the relationship between

capital investment and income has undergone considerable change.

RATE OF AGRICULTURAL EARNINGS

In the five years immediately preceding the war, earnings from agriculture as a whole were sufficient to yield approximately an average return of 4.5 per cent for capital and management, in addition to paying the major operating expenses and a hired-hand wage allowance for the physical labor of the operator and his family. In 1918 and 1919 capital earnings reached 11 per cent but were practically wiped out during the depression in 1920-21. Since then they have reached 3.1 per cent. It is obvious from the following table that, except for the years 1916-19, the earnings for capital and management have generally been below the current commercial rates of interest. At this point it should be observed that the rates shown in Table I, (p. 29) are based on current values of agricultural capital and on relatively high valuations during the war. They are therefore lower than they would be if based on prewar valuations. If these earnings were computed on valuations adjusted to 1910-14 farm property values, the highest average return during the war period would not exceed 17.5 per cent. Even on this prewar basis the rates earned on agricultural capital do not appear high in comparison with the profits secured during the war by many other industries operating on a "cost plus" basis.

In comparing these returns on agricultural property with the rates of return earned in other industries two additional facts need to be borne in mind. The returns on agricultural property include the rewards for both capital and the managerial services contributed by the farmers. On the other hand, they represent returns in

TABLE I—RATES OF EARNINGS ON ALL AGRICULTURAL CAPITAL AND MANAGEMENT, 1909-1923

Calendar Year	Total Value of Farm Property January 1*	Gross Income†	Net Income Available for Capital and Management‡	Rate Earned on Total Farm Property
	1,000,000 Dollars	1,000,000 Dollars	1,000,000 Dollars	Per Cent
1909.	40,059	5,005	1,427	3.6
1910.	41,400	6,112	2,451	5.9
1911.	42,225	5,772	1,926	4.6
1912.	42,917	5,791	1,759	4.1
1913.	45,227	6,336	2,261	5.0
1914.	46,619	6,507	2,469	5.3
1915.	48,199	6,822	2,757	5.7
1916.	52,687	7,800	3,313	6.3
1917.	57,110	10,505	4,853	8.5
1918.	64,122	13,713	6,882	10.7
1919.	71,848	16,111	8,021	11.2
1920.	78,707	11,153	1,980	2.5
Crop year§				
1919-20.	79,607	15,830	4,954	6.2
1920-21.	73,872	12,782	438	0.6
1921-22.	63,664	9,552	865	1.4
1922-23.	61,594	10,592	1,916	3.1
1923-24.	59,409	11,467	1,863	3.1

* Includes allowance of 1 per cent of inventory for cash working capital.

† 1909-20, Dr. W. I. King's estimates of income from agricultural production before deducting operating costs. Income in U. S., II, p. 55.

‡ 1909-20, Dr. W. I. King's estimates of total returns to all farm property owners reduced by a wage allowance for the estimated number of farmers.

§ U. S. Dept. of Agriculture, Crops and Markets Supp., August, 1924.

addition to the house rent furnished by the industry to the farm operators.²

² The data in Tables I and III for the calendar years 1909-20 are taken from Income in the U. S., II, Nat'l Bureau of Economic Research, and for the past five crop years from Crops and Markets Supplement, Aug., 1924, U. S. Dept. of Agriculture. The two studies followed in general the same procedure. Income values are based on the value of production less feed and seed requirements. The values of the Department of Agriculture are based on prices received by farmers during the marketing season, weighted by the portions marketed each month. Other differences appear in the number of items included in business expenses. The study of the Department of Agriculture included property taxes as an operating cost. On the other hand, the National Bureau of Economic Research included interest paid on bank credit, which in the former study was handled as one of the returns on borrowed capital. In the aggregate results, the

The rates of earnings shown here on all farm capital are subject to other important limitations. In the first place, they show merely average conditions from year to year for an industry of more than six million independent farm enterprises and take no account of the fact that some farmers or branches of the industry at any given time were in a better or worse position than the average. Secondly, the rates in Table I relate to all agricultural capital irrespective of ownership. Prosperity and depression do not

differences do not appear large, as indicated by the fact that an average for the two calendar years 1919 and 1920 gives approximately the result obtained for the crop year 1919-20 by the Department of Agriculture.

affect all owners of farm property to the same degree. Income on capital invested in farm mortgages, or in farms rented out on a share or cash basis to farm operators, is fairly constant and certain compared with the fluctuations in the earnings on the farmer's own capital. It is therefore highly important to observe how agricultural conditions of the past five years affected the earnings of the farm operator's own capital as distinguished from that of non-operators.

INCOME RATES EARNED BY FARM OPERATORS

In its study of income from agricultural production for 1919-24 the Department of Agriculture distinguished between the share of income retained by farm operators and that paid to non-operators. Among operators it included all farmers, tenant as well as owner-operators, and among non-operators it included all owners of agricultural property not actively engaged in farming.

In order to obtain the portion of the total income applicable to the farmer's

own capital investment in agriculture, the study divides all agricultural property into three groups: (1) capital owned by operators, (2) capital rented from non-operators, and (3) operator-owned property encumbered by mortgage and other indebtedness. Item 1, the current value of the operator's net capital investment in agriculture, is obtained by deducting items 2 and 3 from the estimated current value of all agricultural capital. This distribution indicates that of the total farm property in 1920, valued at 79.6 billion dollars, operators owned 48.5 billion, or 61 per cent. In 1924, the total capital investment was valued at 58.4 billion, of which operators owned 33.4 billion, or 56 per cent. The rates earned on all capital and the rates received by the various owners are shown in Table II.

It is immediately obvious that the rates paid on mortgage and other indebtedness, and on rented farms, are relatively constant. A large portion of farm indebtedness is in the nature of long time obligations and necessarily forms a prior claim on income. In

TABLE II—RATES OF RETURN EARNED ON ALL CAPITAL AND RATES RECEIVED BY THE VARIOUS OWNERS OF CAPITAL

Year	Rate Earned on All Capital Invested in Agriculture*	Rate of Interest Paid on Mortgage and Other Indebtedness	Rate Paid on Value of Cash and Share-Rented Property†	Rate Earned on Operator's Net Capital Investment‡
	Per Cent	Per Cent	Per Cent	Per Cent
1919-20	6.2	6.7	8.8	5.8
1920-21	6.6	6.8	7.7	-3.1
1921-22	1.4	6.8	5.7	-1.4
1922-23	3.1	6.8	6.3	1.5
1923-24	3.1	6.8	6.7	1.4

* After paying all operating expenses, including taxes, and allowing a wage to operators.

† Estimates of the Division of Land Economics.

‡ After paying all operating expenses, including taxes, and allowing wages to operators. Operators' net investment in agriculture is property actually owned, excluding that which is rented from non-farmers and that which is encumbered by indebtedness.

1919-20, net income available for capital (for estimated amounts see Table I, p. 29) was somewhat over 6 per cent in addition to a wage allowance for the operator's labor. In the following year capital earnings represented a return of less than 1 per cent on the entire investment but not sufficient to pay interest on indebtedness and rent on rented farms. If these obligations were met, the actual operators must have drawn on their cash and credit reserves or received less than the hired-hand wage allowed them for their labor. Practically the same conditions existed in 1921-22. In the past two years, however, in addition to a labor wage allowance for the farm operator and payment of more than 6 per cent on borrowed capital, income from agriculture was sufficient to allow a 1.5 per cent return on the operator's own capital.

The losses sustained in capital earnings in 1920-21 and 1921-22, and the low inadequate rates during the past two years, were not the only losses sustained by agriculture. It has been pointed out that agricultural inventory values declined from 79.6 billion dollars in 1920 to 59.4 billion in 1924. In calculating the yearly income from agricultural production these losses on inventory were not included. For the most part they represent merely paper losses, but in many cases they represent actual losses, particularly to those farmers who bought at high values and were forced to sell out during the depression at deflated values.

THE FARMER'S REWARD

The preceding comparisons, dealt entirely with the returns on agricultural capital, the returns being obtained by deducting from gross income all operating costs and a wage allowance for the physical labor contributed by the farm operator. We may now indicate the

rewards for the farmer's labor, risk and management, by deducting from income a current interest return on capital. The balance distributed over the estimated number of farm operators represents the individual farmer's reward. The results appear in Table III.

In Dr. King's estimates for 1909-1920 all capital was allowed a return of 5 per cent for all years except 1919 and 1920, when the rate was changed to 5.5 per cent and 6.5 per cent respectively. In the calculations of the Department of Agriculture for 1919-24, borrowed capital (mortgaged and rented) was allowed a rate of return ranging between 6 and 7 per cent, and the farmer's own capital a rate of approximately 4.5 per cent. It is evident that the two studies give comparable results though differing somewhat in methods used. The average of Dr. King's estimates of reward per farmer for 1919 and 1920 is \$965, which compares with \$932, the crop year average for 1919-20.

The rapid rise in reward for the farmer's labor and management from 1915 to 1919 is obviously due in large part to the uniform rate of 5 per cent allowed on capital. If agricultural capital were allowed the profitable rates earned by other industries during the war, the rewards for the farmer's labor would appear considerably less.

During the five years before the war, the average farm family earned \$396. In 1918 and 1919 this amount increased to more than \$1,200 but declined during the depression of 1921-22 to \$292, this being the lowest return during the past 15 years. Since then it has exceeded the prewar average of \$396 in both years, 1922-23 and 1923-24.

The real value of the returns for the farmer's physical effort and managerial services has been surprisingly low. The highest earnings during the war, \$1,466, had a value of only \$737 in exchange for non-agricultural commod-

TABLE III—AVERAGE EARNINGS OF FARMERS FOR LABOR, RISK AND MANAGEMENT COMPARED WITH FARM-HAND WAGES, 1909-1923

Calendar Year	Reward per Operator (Including Family Labor)*	Wages, Without Board, per Year Paid to Hired Farm Labor	Index of Prices of Non-Agricultural Commodities† (1910-1914=100)	Real Value (if Exchanged for Non-Agricultural Commodities) of—	
				Reward per Operator	Wages Paid to Hired Farm Labor‡
	Dollars	Dollars		Dollars	Dollars
1909.....	311	329	.	...	.
1910.....	462	330	102	453	324
1911.....	392	345	96	408	359
1912.....	372	355	100	372	355
1913.....	444	364	104	427	350
1914.....	459	359	97	473	370
1915.....	495	362	101	490	358
1916.....	586	394	138	425	286
1917.....	903	485	132	496	266
1918.....	1,278	586	188	680	312
1919.....	1,466	675	199	737	339
1920.....	465	779	241	193	323
Crop year					
1919-20....	932	675	226	412	299
1920-21....	399	779	213	187	366
1921-22....	292	520	159	184	327
1922-23.....	454	501	177	256	283
1923-24....	520	563	166	313	339

* Income available per operator after deducting operating costs and allowing interest on capital. Calendar years 1909-20, estimates of Dr. W. I. King, *Income in the U. S.*, II (p. 63); crop years 1919-20 to and including 1923-24, estimates of the Department of Agriculture.

† Bureau of Labor Statistics. 1910-1914=100.

‡ It is recognized that this method of evaluating farm wages does not take into account the fact that the farm laborer's budget is somewhat different from that of the farm operator.

ities. During the depression the buying value of the farmer's earnings dropped to less than \$190, and by the end of the 1923-24 season was still considerably below the real prewar earnings. The average reward of \$520 per farm family in the past year, if exchanged for non-agricultural commodities, could buy only as much as \$314 did before the war. Compared with prewar earnings of \$396, the purchasing power of the average farmer's income for 1923-24 represented 79 per cent of its prewar purchasing power.

The additional comparison in Table III between the farmer's reward and

wages paid to hired labor further emphasizes the inadequacy of agricultural income, particularly during the past four years. During the ten years from 1910 to 1919 the rewards per farm family exceeded the yearly wages paid to farm laborers. Since 1920-21 the average farmer could have obtained a larger income if he had hired himself out as a farm hand.

DISTRIBUTION OF OPERATOR'S GROSS INCOME

The fact that agriculture since the price decline in 1919-20 has not earned sufficient income to allow both a cur-

rent interest return on capital investment and an adequate reward for the farmer's labor and management has, of course, a direct bearing on the welfare of the average farm operator. Table IV has been constructed to show the relationship of agricultural income and its distribution to the farmer's welfare.

Gross income from agricultural production is here distributed from the

point of view of the farm operator. The average farmer pays for hired labor, buys products of other industries with which to operate his business, pays taxes on his own property, rent on borrowed property and interest on debts. The remainder, which constitutes his net income, may be either in the form of cash or products raised for the farm family. In 1919 the aver-

TABLE IV.—DISTRIBUTION OF OPERATORS GROSS INCOME FROM AGRICULTURAL PRODUCTION, 1919-1924

	1919-20	1920-21	1921-22	1922-23	1923-24
	1,000,000 Dollars	1,000,000 Dollars	1,000,000 Dollars	1,000,000 Dollars	1,000,000 Dollars
Gross income	15,830	12,782	9,552	10,592	11,467
Distribution:					
Wages to hired labor.	1,492	1,730	1,103	1,074	1,208
Paid for products and services of other industries, repairs and main- tenance of buildings and equip- ment.....	3,394	3,603	2,582	2,702	3,018
Taxes on operator-owned investment	388	545	582	617	617
Rent on property rented from non- operators.....	1,706	1,403	959	992	989
Interest on mortgage and other in- debtedness held by non-operators.	707	728	738	748	748
Consumed on farms for family living.	3,416	3,403	2,633	2,700	3,048
Net cash income available for living expenses and other distribution...	4,727	1,370	955	1,759	1,839

DISTRIBUTION IN PER CENT OF GROSS INCOME

	Per Cent 100	Per Cent 100	Per Cent 100	Per Cent 100	Per Cent 100
Gross income.....					
Distribution:					
Wages to hired labor.....	9.4	13.5	11.6	10.1	10.5
Paid for products and services of other industries, repairs and main- tenance of buildings and equip- ment.....	21.4	28.2	27.0	25.5	26.3
Taxes on operator-owned investment	2.4	4.3	6.1	5.8	5.4
Rent on property rented from non- operators.....	10.8	11.0	10.0	9.4	8.6
Interest on mortgage and other in- debtedness held by non-operators.	4.5	5.7	7.7	7.1	6.5
Consumed on farms for family living	21.6	26.6	27.6	25.5	26.6
Net cash income available for living expenses and other distribution...	29.9	10.7	10.0	16.6	16.1

age farmer, after meeting the above necessary costs, had a net income consisting of 21.6 per cent of total income in the form of products for family living, and 29.9 per cent in cash, available for the purchase of those things which affect his standard of living. In the two severest years of the depression, when gross income dropped from 15,830 million to 9,552 million dollars, the available cash income amounted to only 10 per cent of the total. In other words, the farmer not only had fewer dollars to spend but he could spend only 10 per cent of each dollar for clothing, groceries, furniture, education and other items that contribute to the maintenance of a proper standard of living. Since the low point reached in 1921-22, there has been an improvement in farmer's income. In the past two years larger portions of the operator's income were available for family use and for living expenses.

The above distribution of the farm-

er's gross income forms a brief summary of the effect of the post-war depression on agriculture. As in other industries, the primary effect of declining prices was a maladjustment in the relation of costs of operation and income. It will be observed that the major expense items—labor, necessary purchases from other industries, taxes and interest—actually increased in 1920-21, when income had already declined. In that and the following year costs of operation absorbed greater portions of enormously decreased income. The slow improvement in the past two years has given the average farmer a larger share of his income for family living and for purchases toward the maintenance of his standard of living. In the present period of actual and prospective improvement it is to be expected that costs of operation will lag behind and enable the average farm operator to regain some of the losses of the past few years.

Interest and Taxes in Relation to Farm Income

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AGRICULTURE is a heavily capitalized industry with a low sales turnover and a high ratio of fixed charges to gross receipts, including under fixed charges, contractual interest and direct taxes. With rising land values and increasing commercialization of agricultural production, too, indebtedness and interest charges rise rapidly; and the increase in taxation during the past generation under our system of general property taxes has borne at least as heavily on farmers as on other classes of the population.

In view of these facts the payments on interest and tax account appear as a very important factor in the farmer's economic position. The heavy capitalization and low turnover of agriculture mean a relatively narrow margin of gross income over fixed charges; and any variation in the amount either of income or charges influences in very marked degree the amount left to the farmer to pay operating costs and living expenses.

The burden of fixed charges on agricultural income presents two phases: first, the secular trend—*i.e.*, the long time tendency of the proportion of income absorbed by the charges to rise or fall; and second, the effect of periods of inflation and speculation, such as that from 1916 to 1920, upon the fixed charge ratio.

The long time trend of the fixed charge ratio is of great significance in determining the permanent status and development of agriculture. In this connection farm mortgage indebtedness must be taken as typical of the group, as the only data available over any considerable period are those of

the Census Bureau relating to farm mortgages. The rather fragmentary evidence on this point indicates clearly that the burden of mortgage interest charges tended to decline rather than increase over the thirty year period from 1890 to 1920.

The proportion of owner-operated farms encumbered with mortgages, it is true, increased between 1890 and 1920—being 27.8 per cent in the former year, 37.2 per cent in the latter. The increase was steady from decade to decade. The amount of the debt as compared to the value of the property mortgaged, however, declined from 35.5 per cent in 1890 to 27.3 per cent in 1910, rising in the next decade to 29.1 per cent. Thus in spite of the increase during the boom period preceding 1920 the owner-operator equity was proportionately greater at that date than thirty years earlier. If mortgages on rental farms be allowed for, the total indebtedness increased at practically the same rate as the value of land and buildings.

MORTGAGE INDEBTEDNESS

A comparison of mortgage interest charges with farm income also shows a declining interest burden. Interest payments on all farm mortgages—including both owner-operated and rented farms—between 1890 and 1910 increased about 100 per cent, while farm income rose 105 per cent. By 1920 the interest payments had risen to 470 per cent of the 1890 base, farm income to 520 per cent. This was at the peak of farm prosperity. Taking the average of the three years, 1918 to 1921, however, there still is shown a favorable

ratio of increase. Interest payments for these years averaged about 460 per cent of 1890, income 475 per cent.

From 1890 to 1910, then, there was a marked decline in mortgage indebtedness compared to farm property and income. From 1910 to 1920 there was some increase, but at the end of the period the burden on owner-operators was lighter than in 1890, and the total burden on all farm property was at most no higher. During the subsequent depression this burden was greatly increased and is now much heavier than in 1890. Whether this marks a reversal of trend since 1910 with a rising ratio of interest charges to income it is yet too early to say, but it appears likely that the reversal is temporary due chiefly to the war-time inflation and subsequent depression. The implication of such facts as are available is that the fixed charges, at least, show no tendency toward a permanently growing encroachment on farm income which, if it took place, would mean a decreasing owner equity and growth of absentee landlordism. Apparently agricultural expansion, in the long run, is being financed from within the industry.

Whatever the long time movement may prove to be, it is manifest that the immediate situation growing out of the recent crisis is of much more compelling importance. On this period a little more information is available than for the long time movements. In addition to the census reports of 1910 and 1920 on the mortgage indebtedness of owner-operated farms, estimates of the total farm mortgage indebtedness for the year 1920 have been published by the Bureau of the Census and the Department of Agriculture. The amount of personal and collateral indebtedness of farmers for July 1, 1918, and December 31, 1920, was reported by the Joint Commission of Agricul-

tural Inquiry. Some estimates of interest rates paid by farmers have been published by the Department of Agriculture. On taxation the National Industrial Conference Board has compiled figures showing taxes paid by farmers in 1918, 1919, 1921 and 1922. The writer has estimated these various items for other years from 1909 to 1924, taking into account changes in land values and farmers' cash income.

The results of these computations are presented in the accompanying table and chart, showing the movements of the various items of fixed charges as compared to the gross income from sales of farm products. No great accuracy can be claimed for the figures on either interest charges or taxes in particular years, but it is believed that tendencies are truthfully portrayed.

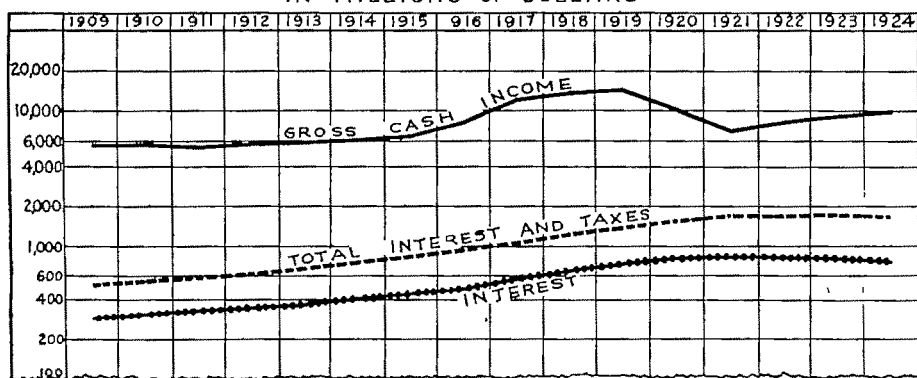
The general fact brought out by this study is that income and fixed charges with some fluctuations tended to run parallel from 1910 to 1920, after which income slumped in a very marked degree until 1921 while the charges continued to rise. Since that date taxes and interest have become practically stabilized at close to \$1,700,000,000, while cash income has increased from about seven and a half billion to nearly ten billion dollars. The burden of the fixed charges while considerably less than in 1921 is still much greater than in the prewar period.

The total estimated charges for interest and taxes in 1909-10 were 520 million dollars. Ten years later in 1919-20 they had risen to 1,365 million dollars, an increase of 163 per cent. Farm income in the same period increased 154 per cent. Thus fixed charges encroached slightly on cash income. The rate of increase in taxes was greater than for the total group of fixed charges and in bank interest it was probably still more rapid. The

ESTIMATED INTEREST PAYMENTS, TAXES AND CASH INCOME OF FARMERS 1909-24
(In Millions of Dollars)

Fiscal Year	Mort- gage Debt	In- terest Rate	In- terest Charge	Per- sonal Debt	In- terest Rate	In- terest Charge	Taxes	Total Fixed Charges	Gross Cash Income
1909-10.....	3,200	7 0	224	1,000	7.0	70	225	519	5,563
1910-11.....	3,400	7.0	238	1,000	7.0	70	240	548	5,628
1911-12.....	3,600	7 0	252	1,200	7.0	84	260	596	5,478
1912-13.....	3,800	7.0	266	1,200	7 0	84	285	635	5,721
1913-14.....	4,000	7.0	280	1,300	7 0	91	315	686	5,910
1914-15.....	4,300	7.0	301	1,400	7 0	98	350	749	5,948
1915-16.....	4,800	7.0	336	1,600	6.5	104	400	840	6,502
1916-17.....	5,400	6 7	362	1,800	6.5	117	450	929	8,298
1917-18.....	6,200	6.7	415	2,200	6 7	147	500	1,032	12,268
1918-19.....	7,200	6.7	482	2,700	6 7	181	550	1,213	13,766
1919-20.....	7,860	6.7	527	3,250	6 7	218	621	1,366	14,105
1920-21.....	8,000	6.7	536	3,870	7.0	271	750	1,557	10,754
1921-22.....	8,000	6.7	536	4,000	7.0	280	872	1,688	7,462
1922-23.....	8,250	6.7	553	3,750	7.0	263	861	1,677	8,944
1923-24.....	8,500	6.7	570	3,500	6.8	238	875	1,688	9,540
1924-25.....	8,500	6.7	570	3,250	6.5	211	875	1,656	9,900

Farmers' Cash Income and Fixed Charges 1909-1924
IN MILLIONS OF DOLLARS



NOTE.—Data are for crop years beginning July 1; thus the amounts shown for 1924 are estimated income, taxes and interest for the current year July 1, 1924, to June 30, 1925. The gross cash income line represents farmers' receipts from products actually sold, eliminating those fed to livestock or consumed by the farm family. Figures are plotted on logarithmic scale to bring out ratio between the charges and cash income.

mortgage interest charge showed the least relative increase, rising only 135 per cent.

The amount of farm mortgage indebtedness on owner-operated farms was reported by the Census Bureau on January 1, 1920, as approximately

four billion dollars. The total farm mortgage debt was subsequently estimated by the Bureau as 7,858 million dollars for the same date. The reported indebtedness on owner-operated farms in 1910 was 1,726 million dollars. Estimating for other farms on the same

basis as above the total mortgage indebtedness in 1910 must have been about 3,200 million. Very little is available on the rate of interest paid on mortgage loans, but the rate on total indebtedness in 1919-20 has been estimated by the United States Department of Agriculture at 6.7 per cent. Taking this figure and estimating the rate in 1910 to have been 7 per cent, the mortgage interest charge in 1909-10 amounted to 224 million dollars and in 1919-20 to 527 million.

Personal and collateral loans of farmers at the banks were reported to the Joint Commission of Agricultural Inquiry for July 1, 1918, as two and one half billion dollars and on December 31, 1920, 3,870 million dollars. Assuming that the amount of short time loans ordinarily bears some fairly stable ratio to gross sales and that the ratio in 1918 was probably more nearly normal than at the end of 1920, the amount of such personal indebtedness has been estimated for previous years back to 1909. On this basis the indebtedness for the year 1909-10 is placed at one billion dollars and the interest charge 70 million. The indebtedness in 1919-20 was apparently about three and one-fourth billion dollars and the interest charge around 220 million. A year later the interest charge had risen to 270 million dollars and the increase probably continued on into 1921, being estimated at that time as 280 million, or four times the amount paid in 1909-10. These estimates, it should be noted, do not include personal indebtedness other than that owing to banks. Farmers at all times have considerable other personal obligations to individuals and retail dealers, a part of which bears interest and part of which at least nominally does not. So far as the writer is aware, no definite information on the amount of these debts has

ever been published and they are here ignored, although the total doubtless runs to very large figures.

The increase in taxes has been no less marked than that of interest charges. The National Industrial Conference Board's report on "Tax Burdens and Exemptions" places the amount of direct taxes paid by farmers in 1913 at 315 million dollars, in 1919, 621 million, and in 1921 and 1922, 872 million and 861 million respectively. Prorating for other years we may figure about 225 million in 1909-10, which indicates an increase of more than 285 per cent between 1909 and 1921.

FACTORS IN AGRICULTURAL DEPRESSION

These greatly increased payments for taxes and interest have been one of the chief factors of the agricultural depression since 1920. According to a publication of the Department of Agriculture, more than 8 per cent of the owner farmers in fifteen corn and wheat producing states lost their farms between 1920 and the spring of 1923. In addition it was reported that over 15 per cent of the farmers in this section were temporarily insolvent but held on through the leniency of creditors. Of the tenant farmers in the same section 14 per cent lost their property in the same period, and another 21 per cent were actually insolvent though not forced by creditors to liquidate. In all it appears that 10 per cent of the farmers in this territory lost their property through inability to meet interest charges, and more than half again as many were actually insolvent but allowed to retain possession.

A survey of the situation in the northwestern grain section by Mr. John H. Rich, reserve agent of the Federal Reserve Bank at Minneapolis, disclosed that in that area stretching from Montana to northern Michigan

7.2 per cent of the farmers were bankrupt, while a considerable number of others had abandoned their land. The percentage of failures varied greatly in different parts of the area, ranging from 2.8 per cent in northern Michigan to 17.7 per cent in Montana. The figure for North Dakota was 10.5 per cent, South Dakota 7.3, Minnesota 3.7, northwestern Wisconsin 3 per cent. The newer sections, where unsuitable land was opened up under the stimulus of war-time wheat prices and where the one crop system predominates, suffered much more intensely than the older and more diversified regions.

This central and northwestern section saw the heaviest accumulation of debt and underwent the most drastic deflation in the post-war depression. In the eastern and southern portions of the country much less distress is to be noted. The extent of losses in those sections can only be guessed at, but it is probable that we may place the total number of farms actually lost with or without formal foreclosure at about 175,000 to 200,000 or 4 to 5 per cent of the owner-operated farms in the United States.

An interesting sidelight on the causes of failure is given in the Department of Agriculture's publication above mentioned. It is there stated that of the 230,000 farmers suffering loss of property, 43,000 owners lost their farms as a result of purchasing land during the boom period, and 11,000 experienced loss as a result of unwise investments outside the farming field. When reduced to percentages it appears that only 2.7 per cent of the farm owners in these fifteen states failed as a result of land speculation and only one-half of one per cent of all farmers were bankrupted by other speculative investments. These figures do not seem to indicate that farmers lost more heavily

through speculation than did men in other lines of business.

The question of the movement of interest and tax charges since 1920 to 1922, which are the most recent years covered by actual investigations, is almost entirely a matter of speculation. In the case of mortgage indebtedness it may readily be assumed that there has been little new borrowing as there have been practically no transfers of farm lands and very little has been done in the way of improvements, for which purposes mortgages are ordinarily assumed. Some of the floating indebtedness has been funded; but, on the other hand, some mortgages have been cancelled as a result of foreclosure or voluntary surrender of property. From 1920 to 1921 no doubt some increase can be allowed for the mortgaging of unencumbered property to secure current funds. Since that time perhaps a half billion dollars have been written off through liquidations. To offset this one half to three quarters of a billion may be allowed for new loans to fund personal obligations. New loans for other purposes might be expected to exceed somewhat repayments of old loans. Taking these various and variable factors into account we are inclined to place the total mortgage indebtedness at eight and one-half billion dollars, or about half a billion more than in 1921. This figure is considerably lower than other current estimates.

RETURN TO NORMALCY

As regards personal indebtedness, it seems most probable that the total has been somewhat reduced since 1920 and 1921. The latter year probably saw the peak in this item, at which time we estimate the amount to have been four billion dollars. In the last three years, in addition to an estimated half billion of this amount funded, we estimate that another quar-

ter billion has been repaid out of earnings or written off. In the western cattle country advices indicate that indebtedness has been reduced, especially in the Dakotas; and it is well known that debts in the hard wheat section from Oklahoma to the Dakotas are being liquidated out of returns from the 1924 crop. Farmers' taxes probably have not been reduced since 1921.

The burden of fixed charges in the past four years, according to figures of the Department of Agriculture, has at times exceeded the net returns from agricultural operations after costs of production were allowed for. But this burden has decreased each year since 1921. This has been due to increasing income rather than decreasing fixed charges. The total fixed charges, in fact, have remained practically constant between 1,650 and 1,700 million

dollars. Whether this burden continues to decrease during the next few years will depend rather on income than on any changes in the amount of the fixed charges. The latter appear to have become pretty well stabilized at present levels. During the several ensuing years we may look for some increase in farm mortgages as a market for farm real estate once more appears. Personal indebtedness of farmers will probably decline somewhat further as it appears still to be above the normal proportion to turnover. Taxes will probably remain about constant or possibly decline slightly. The bonded indebtedness of counties and local municipal corporations for school buildings and other public construction has ceased its rapid expansion. Salaries of teachers and public officials have been reduced in some cases, and more of a spirit of economy has been enforced.

Taxes in Relation to Earnings of Farm Real Estate

By C. O. BRANNEN

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THE effect of taxation on industry has been the subject of much discussion in recent years. The first question usually raised is, what part of the profits, rents or interest—that is, the returns from invested capital—is required to pay the tax? This is the point of view naturally adopted by the man of considerable wealth, where the effect of taxation is measured largely by the extent to which it cuts away the earnings of invested capital. Every business man thinks in terms of expanding his business, and the tax he pays retards his expansion to that extent. The matter of primary concern to him, therefore, is the extent to which taxation reduces his wealth or the earnings of his wealth. There is a tendency thus to view taxation from the standpoint of its effect on business. The direct proof of this tendency is found in the abundance of statistical data that is being collected by business concerns to show the relationship of taxation to property incomes. One reason for this awakened interest is the fact that so much larger part of property earnings is taken in taxes at present than in former years. Another reason perhaps is the recent movement in state taxation to levy specific taxes on a variety of classes of property and incomes.

Capacity to absorb the tax, which is essentially what this view of taxation means, is based on the idea expressed by Professor Hobson when he says that

such parts of the revenue of anyone as are physically or morally necessary to evoke and maintain the output of productive power which serves to create this revenue, should be excluded from the purview of this

test as possessing no ability to bear taxation.¹

If we apply this theory to a given investment in which capital is employed for productive purposes, we have the application of the same principle, but in a narrower sense. In this sense the returns from an investment would be expected to absorb not only the operating costs and taxes, but also to allow over and above these costs a return satisfactory to the investor. Otherwise, either the capital will be withdrawn and placed elsewhere, or the tax will be borne at the expense of the healthy growth and development of the enterprise. It is in this sense that taxes in relation to farm real estate earnings might be considered excessive.

TAX SITUATION

The U. S. Department of Agriculture has made a series of investigations to ascertain the relation of taxes to real estate earnings. For the sake of brevity the results of these investigations will be summarized for the North Central States. In most of the studies made by the Department cash rent was used as a measure of real estate earnings. Cash rent is considered representative of earnings where a large percentage of the land is operated under the cash rent system. In five of ten counties studied for 1919, taxes absorbed 22 per cent or more of the net cash rent of farms. The tax expressed in percentage of net rent, before deducting taxes, is shown

¹ *Taxation in the New State*, Preface, p. VII.

for these counties in the following table:²

The percentage of farm rents taken in taxes in other regions of the country was found to vary from 6 to 66 per cent, although there was more uncertainty in arriving at the net rent for comparison with the tax in other areas.

While the situation as expressed in these figures was by no means encouraging in 1919, every evidence indicates that it has grown worse since that time. Taxes have not only increased, but rents have been reduced. In Indiana the tax on farm real estate of 109 farms, expressed in percentage of net rent, increased from 12.7 per cent in 1919 to 45.1 per cent in 1922.³

A similar historical trend is found for selected farms in the northwestern counties of Missouri and in the state of Ohio. The results of studies made in these areas are shown in the following table:⁴

² Press release by the U. S. Department of Agriculture, July 13, 1924.

Franklin, Ohio	22.4
Tipton, Indiana	15.0
Macoupin, Illinois	18.2
Lenawee, Michigan	38.0
Dane, Wisconsin	29.6
McLeod, Minnesota	24.4
Moody, South Dakota	16.2
Story, Iowa	18.8
Wayne, Nebraska	11.7
Butler, Kansas	23.7

³ Press Release of the U. S. Department of Agriculture, March 25, 1924.

⁴ Unpublished statistics collected by the U. S. Department of Agriculture. The tax in these studies was taken from official records. The net rent was found by deducting from gross rent the costs incident to depreciation, repairs and insurance of farm buildings. By this method the total deduction may be more than is warranted when the value of farm buildings is in excess of normal farm requirements, that is, when the farm is over-improved. The amount of net earnings obtained in such cases may be slightly lower or higher according to the effect of this factor. This inaccuracy is cared for, in part at least, by

While rent in these studies was used as a measure of land earnings, another study of the Department shows the relation of taxes to farm property incomes, mainly from real estate, for 2,669 owner-operated farms in the North Central States. The average return assigned to farm property of these farms for 1922, after allowing current wages to unpaid labor, was \$562, while the tax paid per farm was \$211, or 27 per cent of property earnings.⁵ By the same method Professor Warren shows from other investigations that on farms in Ohio, Indiana and Wisconsin taxes of net business receipts rose from 9.8 per cent in 1913 to 33 per cent in 1921.⁶ Information obtained from other sections of the country indicates that excessive farm taxation is by no means confined to the North Central States. In 1919 in Delaware and Niagara counties, New York, the tax absorbed 31 per cent of the rent; in Payne County, Oklahoma, 29 per cent; in Delta County, Colorado, 24 per cent; in Ada County, Idaho, 28 per cent; in Washington County, Oregon, 38 per cent. Certainly, no more convincing facts are needed to prove that farms are excessively taxed, not only in relation to income, but also in comparison with other industries.

DEFECTS IN TAX SYSTEM

There must be fundamental defects in our system of taxation to explain

making no allowance for any other costs incurred by the landowner.

Year	Indiana	Missouri	Ohio
1919.	12.7	10.1	30.8
1920.	23.1	11.7	33.3
1921.	39.1	19.2	39.6
1922.	45.1	18.6	44.9

⁵ Rearranged from "Returns from Farming on 6,094 Farms," Preliminary report by the U. S. Department of Agriculture, June, 1923.

⁶ "The Agricultural Depression," by G. F. Warren, *Quarterly Journal of Economics*, February, 1924.

conditions as revealed in these investigations. What are these defects? Some will say, perhaps, that the difficulty is temporary, and, if left to the operation of economic law, will right itself in time. This is doubtful. The major difficulty is inherent in the system of state and local taxation, built up as it is around the general property tax system.

There are several ways in which this system operates to the disadvantage of farm real estate. One of these, if not the leading one, is the use of capital value by state and local governments as the basis of farm real estate taxation. Market or sale value as the standard of real estate assessment has become so thoroughly entrenched, both in our system of land assessment and in the minds of taxpayers generally, that any proposal to the contrary is apt to be regarded as revolutionary. A statistical illustration, however, will show the flimsy foundation upon which the tax based on sale value rests.

Market or sale value, it is generally held, results from the capitalization of present and prospective incomes. With census valuations representing market value, it was found for the ten counties surveyed in the North Central States that the rent of 1919 capitalized at the current rate of interest on first mortgages represented approximately 50 per cent or less of market value, and less than 30 per cent in four of the counties. This means that the annual value of these farms in 1919 was on the average approximately one-third of the estimated selling price, or that two-thirds of the assumed taxable value bore no more apparent relation to the income from which the annual tax was paid than the mere possibility that incomes might increase at some future time. The tax on capital value takes no account of this uncertainty, which one economist aptly refers to as the

"taxation of blue sky."⁷ The capitalized net rental, expressed in percentage of census valuation, for these counties in 1919 appears as follows:

Franklin, Ohio	39.9
Tipton, Indiana	50.6
Macoupin, Illinois	35.5
Lenawee, Michigan	33.6
Dane, Wisconsin	29.5
McLeod, Minnesota	28.8
Moody, South Dakota	28.9
Story, Iowa	30.6
Wayne, Nebraska	29.6
Butler, Kansas	31.6

SNAGS IN REAL ESTATE TAX

Aside from the immediate hardship which the tax imposes, a tax based largely on future uncertainties is sure to prove inequitable. If expected future income of farm real estate were realized on the average, the degree to which it is realized by different individuals would vary indefinitely. Some would benefit more than expected, while others would benefit less. This would be equally true of all real estate in one locality as compared with all real estate in another. However, there is no positive assurance that present values are justified on the average. The wave of land speculation has carried land values in certain important agricultural areas to a point at which there is little, if any, possibility of their being justified on the basis of earnings. In other areas, notably in the New England States, rural land values have shown consistent reductions over a long period. Either the over-rating or fluctuation of the selling price of real estate, where sale value is the sole basis of assessment, will cause varying proportions of the real estate tax to be misplaced.

Real estate as a class occupies a unique position in this respect. The taxable value of no other important

⁷ "Taxing Blue Sky," by L. C. Gray, *The Country Gentleman*, Dec. 18, 1924.

class of property is perhaps so largely based on expectations of the future. Limited studies of urban real estate and of banks, two classes of property perhaps excessively taxed next to farm real estate, show this to be true in their case. The capital value of stocks, bonds and the like is largely reflected in the annual income. The *ad valorem* tax in their case, when taxed at all, practically follows capacity as measured by current earnings. While the importance of the change in income as a factor determining capital value varies indefinitely with the different classes of property, certainly real estate stands head of the list in the degree of uncertainty with which the tax is placed. For this reason, even if there were no evasion of taxation, real estate stands the greatest chance of being inequitably taxed as compared with other classes, so long as the present basis of assessment is employed.

Sale value as the basis of the real estate tax is frequently justified on the ground that it serves as a means of taxing land speculation, that is, that the tax is in part imposed on land increment. This justification is perhaps warranted, except in one respect. The tax is imposed upon the estimated rather than the actual increment and before the increment is realized in a beneficial form. Before this estimated increment is realized it may be turned into a decrement. It is to be admitted of course that increment is frequently realized from land and that such increment is subject to taxation in some form, but not necessarily as a part of the annual real estate tax. Whether a tax on the annual value, supplemented by the increment tax with all

the administrative difficulties incident to such a change, would work an improvement over the present capital value tax is indeed a debatable question. Besides, it would break down the stronghold of the general property tax system, which, in spite of all its defects, we have been loath to relinquish. What we may expect, however, is a gradual modification of the system whereby current income or earnings will have a more prominent place in the determination of the taxable value.

The principle of earnings as the basis of assessment is legally recognized in most states as a means of fixing valuations for certain classes of property, and in some of the states it may be used as a factor in determining assessed valuations of any and all classes of property. The system of classified assessments is a recognition of the differences in income realized from certain major groups, although it fails as a rule to recognize this difference between properties of the same class devoted to different uses. One county in the United States now proposes to go the whole distance. In this county it is proposed to fix the assessed valuation of farm real estate according to the capitalized net rental, or its estimated equivalent. All these modifications, although they may be defective, indicate the flow of the under current away from sale value as the standard of assessment and in the direction of property earnings as the basis of taxation. In the more general sense, these changes may signify the ultimate substitution of earnings as the measure of specific taxes on property to take the place of value as now used under the general property tax system.

The Trend in Land Values and Land Utilization

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THE significance of the trend in land values can hardly be understood without considering also the trends and changes in the utilization of land. Land values cannot be measured accurately in terms of land area per capita or "pressure of population," but must be sought in numerous forces and factors. A study of the operation of these forces in the past will help us to forecast the future.

THE TREND FROM 1860 TO 1900

From 1860 to 1900 there were several significant trends in values and utilization. After the Civil War the South decreased both in the land in farms and in land values. In some states farm real estate values were cut in half and the acreage reduced by 25 per cent. It was not until 1880 that the acreage of

eight states, increased their farm land area by at least 5,000,000 acres each per decade. In the last ten years of the last century, Texas alone added 74 million acres to the farm land of the nation.

This astonishing rate of development was due in part to the rapidly expanding railroad net which connected producing sections with consuming centers and with the export ports. Meanwhile England and several of the Continental powers were making rapid strides in industrialization at the expense of their agriculture, and these countries furnished a growing market for the expanding West.

A second factor was the growth of our own population as shown by the following table, which presents the figures in round numbers:

POPULATION AND LAND SUPPLY OF THE UNITED STATES, 1850-1920 *

Year	Population	All Land in Farms		Improved Land		Value of Farm Real Estate per Acre
		Total	Per Capita	Total	Per Capita	
1850 . . .	23 millions	294 million A.	12 7 A.	113 million A.	4 9 A.	\$11 14
1860	31 "	407 " "	13 0 "	163 " "	5 2 "	16 82
1870	39 "	408 " "	10 6 "	189 " "	4 9 "	18 26
1880	50 "	536 " "	10 7 "	285 " "	5 7 "	19 02
1890	63 "	623 " "	9 9 "	358 " "	5 7 "	21 31
1900	76 "	839 " "	11 0 "	414 " "	5 5 "	19 81
1910	92 "	879 " "	9 6 "	478 " "	5 2 "	39 60
1920	108 "	956 " "	9 0 "	503 " "	4 8 "	69.38

* U. S. Census 1920, Vol. V, p. 82. Figures refer to continental United States.

1860 was recovered. After that the South shared more or less the general expansion of the North and West, where the increase in farm land acreage was astounding. Between 1870 and 1900 at least seven, and in one decade

It will be noted that there were 13 acres of farm land per capita in 1860, a figure that has declined since then, though not steadily. The improved land in farms is, after all, the productive part of the farm, and it is nota-

ble that from 1890 to 1910 the amount per capita was at its height. Accompanying the rapid growth of population came the urbanization of the nation. In 1880 about 29 per cent of the people were urban dwellers; in 1900 this proportion had grown to 40 per cent, and in 1920 to 51.4 per cent. This meant that in 1880, 35 million rural dwellers were feeding themselves and an additional 15 million city dwellers. By 1900, 46 million rural dwellers were supporting some 50 million people in the cities. But it must also be remembered that the period 1870-1900 was one of heavy export of farm products. The full significance of this change is more noticeable after 1900, but the effects were beginning to show in the later nineties.

In spite of the growth in population the expansion of farm land produced an over-expansion of agriculture. There was a

hasty and pell-mell outpouring of native land grabbers and foreign immigrants upon an extraordinary stretch of virgin land, not a seasoned economic development upon lines of careful planning with due regard to costs, prices and return to labor and investment. . . . We were conducting the most stupendous bargain counter in the history of agriculture.¹

Between 1860 and 1900 the New England and Middle Atlantic states begin a series of decreases in land values that are significant. Between 1860 and 1870 Massachusetts, New Hampshire and Rhode Island had declines; 1870-80, Vermont, Delaware and New Jersey; 1880-90, practically every state east of Indiana and north of Maryland had serious decreases in farm real estate values; while the decade 1890-1900 witnessed another decrease within the same section; but

the decline was also general over the Far West and in Florida.

There were decreases in the value of farm real estate in many of the new states at various times. However, these figures are an average for all land in the state, and the addition of new and unimproved land often lowers the average. For this reason decreases in average land values in an expanding state are not extraordinary or serious.

The situation in the eastern states is of a different nature. The farm real estate of Vermont averaged \$15 an acre in 1850. It reached \$25 an acre by 1870, then declined for three decades, reaching \$18 by 1900. Some of the other eastern states have had a similar history. It must be remembered that these figures represent the value of both land and buildings.

In 1920 the true value of the land of Vermont was about half of the real estate value. This relationship holds for most of the eastern states, but in states such as Illinois, Iowa, or practically all of the southern states, the land represents from 80 to 85 per cent of the real estate value, and in the western states about 90 per cent. Therefore, the decline in land values throughout the East is really greater than indicated by the census figures. The fact is that the value of the buildings helped to hold up the value of the farms as a whole.

When land utilization is considered in connection with land values, the results are even more striking. New England had over 18 million acres in farms in 1850. This figure was increased to over 21 million acres in 1880, but in 1920 there were less than 17 million acres in farms. The Middle Atlantic states had almost 37 million acres in farms in 1850, a figure which increased to 46 million acres in 1880, but by 1920 had dropped to 40½ million acres.

¹ E. G. Nourse: *American Agriculture and the European Market*, McGraw Hill Co. (1924), p. 28.

What becomes of the land no longer classed as farm land? When land goes out of farms it may go into a "higher use"; that is, it becomes urban or suburban land, or is used for roads, railroad, mining developments, etc. This change in utilization is of considerable significance throughout the East. The presence of cities also has a boosting influence on the value of the surrounding agricultural land by making intensive farming profitable and by making the land valuable for country estates.

While some of the land has gone into a higher use, a great deal more has dropped into a lower use. It is estimated that for the past few years about 1,000,000 acres of such land have reverted annually to forest and brush land in the East. The forest area of New England is today 18 per cent larger than it was 60 years ago. Similarly in the southeastern pineries large areas revert to forest each year.²

The fact that land is dropped out of farm use also removes it from the valuation as *farm* land. In other words, the poorest land is no longer averaged with the rest. This has a tendency to raise the average for the state or the section, whereas the inclusion of new lands into farms in the new states has the tendency to lower the average, as was noted before.

A better picture of land utilization is presented by the improved land rather than by the land in farms. In 1850, 28 per cent of New England was improved land. By 1880 almost one-third of the land was improved; today 15.4 per cent is so classed. The Middle Atlantic states began with 35.6 per cent in 1850, reached 51.9 per cent in 1880, but declined to 41.5 per cent by 1920.

A further refinement of the study of

trends in land utilization could be made by noting the change in crops, woodland and pasture on farms. For instance, in 1879 the acreage of hay occupied almost one-third of the improved land area of New England, but today over 55 per cent of a much smaller area of improved land is in hay. On the other hand, the culture on some of the best land has been intensified, as is shown by the increased acreage in potatoes, vegetables and tobacco. The best land has been put into a higher use; the poorer land has gone into a less intensive utilization.

From the standpoint of mere population pressure, land values all over the East should have risen and not fallen, and the utilization of land increased in intensity. In 1850 the New England states, together with the Middle Atlantic states, had 37 per cent of a total population of about 23 million people. By 1900 the population had increased to 76 millions, and this section still had 27 per cent of the entire population. In spite of this the value of New England real estate was but \$2 an acre higher in 1920 than in 1860, and the acreage in farms less than at the time of the Civil War. Land values followed the crest of the wave of expansion, leaving lower values in the trough behind. In 1900 Illinois had the highest land values per acre, with Iowa second³ whereas in 1850 and 1860 New Jersey had the highest real estate values.

THE CHANGE FROM 1900 TO 1910

From 1900 to 1910 not a state decreased in farm land values. For the whole United States the increase was from \$15.57 to \$32.40 an acre—more than 100 per cent increase—and the percentage of increase was much higher for most of the Middle West, South, and Far West.

All parts of the country felt the in-

² This refers to the value of land alone.

¹ W. B. Greeley, *et al.*: "Timber, Mine or Crop?" *Yearbook*, U. S. Department of Agriculture, 1922, p. 88.

crease. Practically all the good agricultural land was now in use, and free land of good quality was exhausted. The great increases in land in farms came in Hundredth Meridian states, the Lake states, and in the Far West. Yet decreases in land in farms took place in most of the Corn Belt and the eastern states. A shift to higher utilization is to be noted in nine states which decreased in total farm acreage, but which in spite of this decline *increased* their improved land acreage. Another eleven states increased their improved acreage faster than their total farm acreage, again a gain for the higher utilization of land. On the other hand, of those eastern states which declined in farm acreage, five decreased their improved acres more than all land in farms. Part of the increase in land values may be explained by the higher form of utilization.

The general increase in the value of land was due to the development of the domestic market for our agricultural products, and not to an expansion of foreign demand. Our population increased from 76 million to 92 million, of which almost 46 per cent was now urban, instead of 40 per cent in 1900. There was a marked decline in the exportation of foodstuffs. Part of this loss in export was forced upon us by the tariffs and other restrictions of France and Germany, and by the competition of new sources of raw materials in Russia, South America and Australia. Nevertheless, the change from the foreign to the domestic market was made with few growing pains; in fact, the United States actually became an importer of wheat, barley, wool, hides, and even eggs and butter. Prices of products were such as to give the farmer a profitable return, while the manufacturer and urban dweller began to complain of the high cost of

living; and land values reflected this situation.⁴

THE TREND FROM 1910 TO 1924

The period from 1910 to 1920 is remarkable in many ways. Land values for the United States rose from \$32.40 to \$57.36. Fourteen states doubled or more than doubled their land values. This rapid rise was also accompanied by curious changes in utilization. There was a decline in the per capita area of farm land, improved land, and crop land.⁵ The states east of the Great Plains decreased their farm acreage by 7,000,000 acres with increases only in the cut-over and drained areas. In the West some 84 million acres were brought into farms, largely, however, for grazing, there being an increase of only 24 million acres in improved land. Land in crops increased about 25 million acres in the East and some 20 million acres in the West, or 11.3 per cent, whereas the farm land area for the United States increased only 8.8 per cent. The new crop land came out of pasture land—about half out of improved pasture and the rest from the unimproved pasture within or without farm boundaries.⁶ It is estimated that, since 1880 the area devoted to pasture decreased by 81 million acres.⁷

The tendency to utilize the best lands more intensively and to put the poorer lands into a still poorer utilization continued during the war period. The general decline in farm acreage

⁴ E. G. Nourse; *op. cit.*, pp. 28-88.

⁵ "Crop land" represents a higher utilization than "improved land." The latter includes "land regularly moved and tilled" whether in crops or not.

⁶ L. C. Gray, *et al.*: "The Utilization of Our Lands for Crops, Pasture and Forests," *Yearbook*, U. S. Department of Agriculture, 1923, pp. 435-487.

⁷ *Ibid.*, p. 438.

was accentuated by the scarcity of farm labor which made it necessary for farmers to curtail their acreage. The high wages paid in manufacturing industries drew the farm laborers away from agriculture and even induced operating farmers to abandon their farms. This condition has continued up to the present time, especially in the past few years when the returns in agriculture have been abnormally low.

UNWONTED EXPANSION AND REACTIONS

The normal development of agriculture was therefore thrown out of joint by the war. Europe's energies were devoted to the manufacture of war materials and shipping. Because of the difficulties of ocean transportation the Allies turned from Argentina, Australia and India to America for foodstuffs and the volume of our exports went back to that of the nineties. Coupled with the needs of our own urbanized population, emphasized by war conditions at home, the demand for agricultural products created extraordinary prices. These prices rose faster than the prices which entered into the farmers' cost of production, and farming began to show a profit in 1915 and even more so in 1916 and 1917.⁸ The high prices continued throughout 1919 but broke sharply in 1920.

The expansion of agriculture came through a readjustment in the utilization of land, and not through any significant increase in farm land. The acreage devoted to production for domestic uses was reduced. The land usually devoted to livestock production decreased. Fallow lands were sown to grain in many places and in others long established rotations were neglected to produce the essential war crops.

This unnatural expansion has had

⁸ E. G. Nourse: *op. cit.*, p. 56.

its reaction. Since the war the utilization has tended to go back to its former status, but not without difficulties. In the Great Plains region farmers have found it almost impossible to contract their wheat acreage.⁹

The sudden rise in the prices of farm products together with the lag in "labor-capital" costs of production produced a high land income, and an unprecedented rise in the value of farm land which assumed veritable booms in some states. Soon after prices began to drop land values also were deflated. The 1924 prices of land are about 71 per cent of the 1920 prices for the United States as a whole. Iowa land values have dropped to 65 per cent of the 1920 prices, Montana to 58 per cent, whereas more conservative states such as Wisconsin and Pennsylvania have values equal to about 80 per cent of the peak price.¹⁰

In the Bluegrass region of Kentucky sales records show that land went from \$171 an acre in 1917 to \$289 in 1920.¹¹ The suddenness with which the boom collapsed here is shown by the fact that in some of these counties the values were practically cut in half by 1921.¹²

At the present time we are just emerging from the depression. For many parts of the country land values struck bottom in 1922 and 1923. Surveys of the farm land market were made by the National Association of Real Estate Boards in both of these years. In October of 1923 the market was reported as practically inactive

⁹ L. C. Gray, *et al.*: *op. cit.*, p. 449.

¹⁰ See table showing the value of plow lands for the United States, 1916-24, in *Yearbook*, U. S. Department of Agriculture for 1923, p. 1146.

¹¹ G. W. Forster: "Land Prices and Speculation in the Bluegrass Region of Kentucky," *Kentucky Experiment Station Bulletin*, 240, p. 49.

¹² Twenty-fourth Biennial Report, Bureau of Agriculture and Labor Statistics, Kentucky, 1920-21, pp. 147-9.

and only 86 per cent of correspondents said that their market had improved over 1922.¹³ This year a similar survey shows an increase of 42 per cent in the number of farms sold over 1923. Only 15 per cent of the replies reported a poor market; 88 per cent of the replies indicate that prices are going up, or are at least stationary. In other words, the deflation of 1919-20 is complete and prices have "nowhere to go but up." This fact in itself gives an optimistic tone to these reports.¹⁴

FUTURE TREND

What of the future? The continuing scarcity of land has been obscured by the over-expansion of agriculture during the World War. Instead of expanding our acres we have converted pasture into crop land. This cannot continue forever. Furthermore, the cutting of lumber from a virgin forest also gives the impression of an inexhaustible supply of farm land. "Farms follow forests" is the old slogan, but much of the present cut-over land is submarginal for crops. Forest land has not been a competitor of farm land in the past, but with the continually increasing prices of forest products it must be expected that forests will not only reclaim the submarginal agricultural land but will also bid for a place on some of the less desirable crop land as well.¹⁵

We cannot expect a revival of the foreign market such as we had during the war. The surplus which was thrown back on us and which helped to bring on the present depression is being absorbed, as it was in 1900-10, by

¹³ *Survey of the Farm Lands Market for October 1923*, Farm Lands Division, National Association of Real Estate Boards, Chicago.

¹⁴ *Second Annual Survey of the Farm Lands Market*, November, 1924, Farm Lands Division, National Association of Real Estate Boards.

¹⁵ L. C. Gray, *et al.*: *op. cit.*, pp. 451-455,

the increasing population at home. Urbanization has continued; in 1920 over 51 per cent of the people were urban dwellers, and since the close of the war the rural people have flocked to the cities by the millions every year. In fact, the actual *farm population*, as determined by the census in 1920, was only about 30 per cent of our total population.¹⁶ Our population growth will make itself felt in higher prices for food and raw materials and in higher land values. How fast this pressure will come is a matter of speculation. The Bureau of Agricultural Economics of the U. S. Department of Agriculture has made careful estimates of the possible scarcity of land in the next three or four decades, based on an estimate of 150 million people by 1950. Assuming a very moderate change in our standard of consumption and a slight increase in our productive efficiency, they estimate that an addition of only 40 million acres of crop land and improved pasture to our present farming area would provide for a population of this size. Allowing for a forest area equal to the present one, this additional farm land can be selected out of some 400 million acres of potentially arable land.¹⁷ However, practically all of this potential farm land is in need of drainage, irrigation, or is inferior in quality, and the selections ought to be made carefully. It is not deemed necessary to reclaim large areas by irrigation or drainage during the next few decades. "Certainly there would be no justification in undertaking such reclamation except in the cases of projects where the economy of reclamation could be demonstrated unequivocally."¹⁸

From the foregoing the conclusion

¹⁶ U. S. Census, 1920, Vol. V, p. 892.

¹⁷ L. C. Gray, *et al.*: *op. cit.*, pp. 495-496.

¹⁸ *Ibid.*, p. 497.

can be drawn that the utilization of land for crops and improved pasture will go forward moderately fast. An increase of 40 million acres in 25 years would call for an expansion of less than 2 million acres per year. During the war decade there were added 45 million acres of crop lands to the arable area of the United States, more than will be required during the next 25 years according to the above estimates.

The trend in land values and in land utilization in the future is a matter of conjecture. Undoubtedly the reversion of the lowest grades of land will continue, and the better lands will move into higher utilizations and higher values. The expansion of crop lands in the future must come out of lands increasingly submarginal, and prices of products must rise enough to make the transition to agricultural land possible. Better land will feel the effects of such a rise in prices of farm products.

But there are other variables in the determination of land values. A lowering of the interest rate will have a

tendency to raise land values. On the other hand, the rate of population growth has declined and may decline more in the future. Furthermore, we have by no means reached the limit of improving the technique of agriculture. Should two blades of grass be made to grow where but one grew before, the increased production will have a marked effect on the value of land. Should the two last factors happen together we may even expect to have a general downward movement in land values, except in those regions where farm land values are due to amenities or other factors.

Finally, the readjustment of the world's agriculture must be considered. New lands are being brought into use everywhere; the tropics are being developed and the Corn Belt and dairy farmers are beginning to feel the competition of vegetable oils. New cotton regions are being opened in Africa, South America and India. The extent of such foreign competition will have a profound influence on the value of our farm lands.

Migration To and From Our Farms

By CHARLES L. STEWART

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MIGRATION is the shifting of residence of individuals or families into or out of a designated area during a designated period of time. Daily trips from one's residence in the country to one's place of work in town or vice versa are excluded from this definition. Migration is analogous to the movement of supplies out of an area of market surplus into an area of market deficit. Most migrations, but not all of them, are movements on the part of persons,—breadwinners among them—who are responding to stronger demands for their nearly fixed supply of body and brain power.

GROSS *Versus* NET MOVEMENT OF POPULATION

From the standpoint of an area designated for migration study there is always a combination of emigration and immigration. The *in*-movement of one such area is related to the *out*-movement from one or more other areas, just as the *out*-movement from this area is related to *in*-movements of other areas. The net result of a movement affecting an area may be positive or negative, and may be large or small either absolutely or relatively to the gross movements. Very slight gross movements sometimes merely equalize one another. If attaining sufficient magnitude, net movements may be designated as filling or recruitment migrations, from the standpoint of areas being made to increase in population, and emptying or evacuation migrations, from the standpoint of areas being depopulated. Where the result of two gross movements is for one to replace

numbers equal to those removed by the other, the combined movement may be called a replacement migration.

There are two main classes of migration affecting the farm population. In one class the migrant shifts from farm to farm. In the other class the migrant shifts from town to country or from country to town.

SEASONAL MIGRATION

There is all too little statistical information concerning seasonal migration in the United States.

Seasonal migration of farm operators. Farms whose operators do not live upon them throughout the year are numerous in some districts in which fruits and vegetables are grown. In nearly all districts, however, there are some farms to which the operators come during only the rush season. Movement from and to winter resorts on the part of western ranchmen and southern planters, while not general, are cases illustrating this point. Somewhat analogous are the winter movements to nearby towns on the part of operators and others in one-crop areas where winter is especially severe.

Seasonal migration of farm laborers. Statistics of farm labor demand show that in practically every state there is a heavy demand during the main harvest months and in some instances a heavy demand during the period of planting and tending crops. If the seasonal curve of demand for farm labor in a given area shows a high peak once, it is probable that much casual labor will be attracted into that area. Much depends, however, upon the length of

the harvest season. During corn husking in the corn belt, farm hands from the border states sometimes find employment on two or three farms, consecutively. In harvesting of grain and hay, however, migrating laborers work for a much larger number of consecutive employers.

Three regions of the United States are traversed by migratory harvest laborers to a marked extent. One of these is the Great Plains Region with its spring wheat harvest in the northern portion following the winter wheat harvest in the southern portion. The other two regions are the coastal plains of the Atlantic and Pacific Oceans. The coastal regions have the wider varieties of harvested crops, vegetables figuring on both coasts with fruit and grain added in the Pacific Northwest. The movements of laborers in these regions have been such as to lead to their consideration as labor streams. These streams are subject to high percentages of additions and withdrawals, however, and of those who become part of the streams only a small proportion continue through the entire range of latitude.

Seasonal migrations, whether in pursuit of employment or relaxation, create problems in community relationship. Evacuation areas may suffer because of the absence of people during a considerable part of the year and recruitment areas may suffer because of the accumulation of people during a short period of the year.

ANNUAL MIGRATIONS

The main migration in which farm operators figure is that which involves the initiation or termination of annual relationship to farms. This annual migration to the farms has a seasonal incidence, to be sure, but is not to be confused with the seasonal migration previously mentioned. Both owner

operators and tenant operators begin and end their operations on these farms about as indicated in the following table of monthly distribution, the percentages of which total 100: January, 28; February, 6; March, 18; April, 3; May, June and July, about $\frac{1}{3}$ of 1 per cent each; August, 1; September, 2; October, 3; November, 9; and December, 29. Moving in the late winter and early spring, especially in March, is found generally, except in southern states where December-January moving predominates. In general, the moving period falls within the bounds set by annually finishable products. The season of minimum unfinished operations, when farmers have a breathing spell, is the time when operators can best move.

The annual migration of tenant farmers. An indication of the amount of shifting of farm operators is given in figures of the Bureau of Agricultural Economics for the one-year periods ended April 10, 1924, and December 1, 1922, and in reports of the Bureau of the Census as interpreted with special reference to the one-year periods ended January 1, 1920, and April 15, 1910. In the more recent of these two series the number of farms having had a change of tenant operators during the preceding twelve months is estimated to be 420,000 in 1924, and 660,000 for 1922. The number of tenants on farms not operated by them during the preceding year includes all those on the farms just referred to, together with those on farms which had undergone less than a year of tenant operation immediately preceding. The effect of adding the second group of tenants is to increase the numbers given above for 1924 and 1922 by not more than 50 per cent, and probably by not more than 25 per cent in most parts of the country.

During the year ended January 1,

1920, tenants to the number of 426,774 became operators of the farms which they were operating when the census was taken. This figure is less than 58 per cent of the corresponding figure for the year ended April 15, 1910, namely 744,293, and doubtless needs to be corrected by the addition of a considerable proportion of those reporting occupancy of one year but less than two years, the 1920 figure for which is nearly 152 per cent of the corresponding 1910 figure. The difficulty, of course, lies in the fact that a quarter of a million or more incoming tenants, who began occupancy after January 1, 1919, reported that they had been in occupancy a full year on January 1, 1920.

Allowing for discrepancies in the statistics for 1922 and 1924, it is safe to conclude that instead of three-quarters of a million tenants in occupancy less than a year, as indicated for the year begun April 15, 1909, the number was nearly 65,000 in 1919, less by over 80,000 in 1922, and by nearly a third of a million in the year begun April 15, 1923.

It would be inferred from the estimates of the Bureau of Agricultural Economics that the depression years were less characterized by shifting from one tenant farm to another than were the years preceding the two most recent census dates. It is possible, of course, that the agricultural census of 1924-25 will give evidence of a permanent decline in the proportion of tenants who move from farm to farm during the annual moving period. Until the results of this census are available, however, it seems best to assume that decreased migration during the depression years is to be attributed to economic conditions then prevailing.

It is logical to expect that neither landlords nor tenants would try to stimulate tenant changes during hard

times. Landlords are usually willing to give tenants further trial when there are sufficient grounds for believing that the blame may not be imputed entirely to the tenants. The policy of "not swapping horses while crossing streams" is followed by many experienced owners of rented property. Moreover, tenants are less able to afford the luxury of moving during depression periods, and, in some cases, may have become anchored to the premises by the weight of debts owed to landlords. Landlords apparently were called upon to underwrite the obligations of their tenants not only in southern states, but in many portions of the country in which this practice had not previously been customary. The inability of tenants to escape from debt as easily as had been possible before the depression came on is probably a main factor in the reduced turnover of tenant population on tenant farms.

The mental satisfaction of moving at will is not to be confused with the net gains achieved. The economic loss incurred in not moving is doubtless smaller than the economic gain expected from moving. It is possible that the experience of the last few years has brought this fact home to a great many tenants, and that there will be a continued reduction in the amount of tenant shifting in the next few years. To some students of our problem of migratory population, this development would be welcome.

On the other hand, it is probable that tenant migration in the depression years has been distress migration in a large proportion of cases, the distress characterizing the tenant himself or the present or the former owner of the rented land. Landlords who were forced back from retirement into active operation of their farms have had to displace tenants. Owners, many of them active operators of land for years,

allowed their land to go back to stronger hands in satisfaction of debts. Many of these new owners called for tenant operators. Many tenants, moreover, lost their operating equipment by sheriff's sale, or otherwise. In many cases the dispossessed tenants sought new landlord connections or gave up farming operations entirely. The proportion of operators who lost property or who stood at the mercy of their creditors in 1923 was larger in the case of tenants than in the case of operating owners. In the preceding year, it is estimated that nearly 250,000 tenants either discontinued farming for other occupations or moved out of their communities.

MIGRATION FOR PERMANENT SETTLEMENT

Most of the tenant shifts are from farm to farm within the same community, but many tenants migrate into new agricultural regions. During the depression years the distress in the northwest wheat areas and in western states in general was such that much of the westward migration of tenants was discontinued. Many of those who rented land in western states had been owners of land in states farther east.

Movement of owner operators to new farms. In the year ended April 15, 1910, 6.9 per cent of the operating owners had come into occupancy, and in the year ended January 1, 1920, without allowing for shortage, 5.7 per cent. These figures reported by the Bureau of the Census may be compared with the estimates of the Bureau of Agricultural Economics, indicating that for the year ended December 1, 1922, the percentage of farms changing ownership was 6, and for the year ended April 10, 1924, it was 7. The larger figures include farms that were operated by renters both before and

after change of ownership. In the light of the two lines of statistics it is safe to estimate that a quarter of a million new owners each year take up the operation of farms not previously operated by them.

Not all of the incoming owner operators have purchased before entering into occupancy. Of the 100,000 young men below the age of 35 who begin owner occupancy during an average year, about half come into possession by inheritance or by marriage. The other half of this group purchases and moves upon farms less because of adequate savings than because of determination to buy land, even though possessing but small equities. The depression years have diminished the numbers and weakened the farm-buying resolution of this group.

The extent to which owner operators have been drawn into new areas from farms in older farming regions or from town is not measured statistically. During the depression years it is believed that homeseekers' excursions had much less vogue. In many cases persons, who during the land boom in 1919 bought farms to operate, returned to their native areas in subsequent years as their equities disappeared. Increased attention was given to state real estate license laws during the depression period, although the desirability of many of these laws, so far as relating to farm land, remains to be tested in a more active period of farm buying. Many of the more severely victimized land buyers were citizens of distant states. To prevent many of these migrants from being imposed upon, it would have been necessary for local and state authorities, and possibly for Federal authorities, to give special attention to interstate transactions in farm lands.

The movements thus far considered are gross movements and leave out of

account the changes in the statistical position of the farm population as influenced by natural increase of population. The significance of natural increase as a factor in the cityward movement will be emphasized in that which follows.

PROPORTION OF POPULATION OCCUPIED AND OF OCCUPIED PERSONS ENGAGED IN AGRICULTURE, UNITED STATES, 1820-1920.

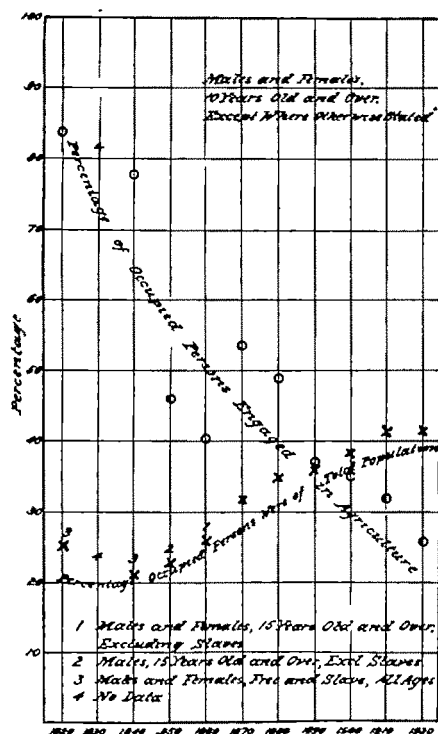


FIG. 1.—A larger proportion of the people were working, but a smaller proportion of those working were occupied at agricultural pursuits during the later decades than before. The latter movement has loaded the city population with mature workers drained from rural districts.

CHANGES DURING TWO HALF CENTURIES

Space does not permit discussion of the effects of differences of enumeration and classification on the census results shown in Figures 1 and 2. Cer-

tain inferences, however, can be safely drawn.

(1) The percentage of the entire population engaged in occupations increased during the century following 1820, most of the increase occurring between 1850 and 1900. During the

TRENDS OF TOTAL POPULATION AND OF NUMBER OF PERSONS GAINFULLY OCCUPIED, UNITED STATES, 1870-1920.

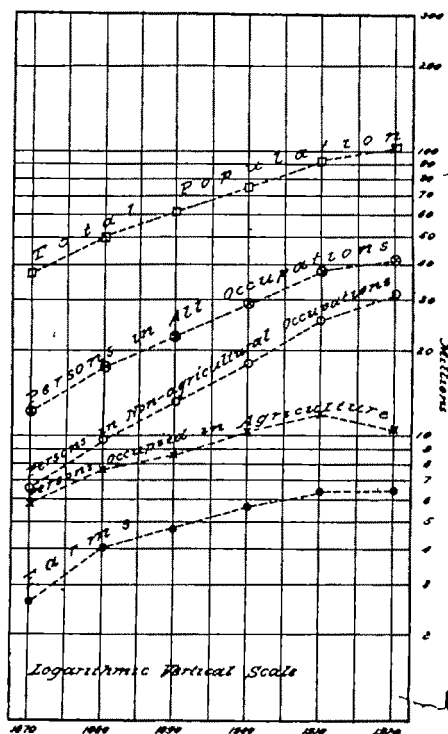


FIG. 2.—During the last half century the number of persons occupied in non-agricultural pursuits increased at more rapid rates and at rates showing less tendency to decline than did the number of persons occupied in agriculture. Since 1920 the migrations have been mainly cityward.

80 years or more within which fell the nine census dates, 1840 to 1920, an average decade witnessed an increase of about 2.4 percentage points in the proportion of all persons in the specified age and sex groups reported engaged in occupations.

(2) The percentage that persons engaged in agriculture were of all persons in occupations decreased markedly and persistently. During the 80 years or more just referred to, an average decade witnessed a decline of about 6.5 percentage points in the proportion of all occupied persons reported engaged in agriculture.

(3) The rate of increase in the number of persons engaged in agriculture has been declining so that the first quarter of the 20th century may be the first to show a practically stationary condition. The 1910 census figures must be discounted and the 1920 figures regarded as considerably short in comparisons made for the purpose of determining whether the number of persons in agriculture during that decade was declining or merely standing still. It is probable that there was no decline in the number of persons engaged in agriculture until 1919 or 1920, especially if the part-time workers are given full weight.

(4) The decline in the rate of increase in the number of persons in agriculture is more marked than the decline in the rate of increase in the number of persons in other occupations. Had the rate of increase in the number of persons occupied outside of agriculture been sustained, it would seem reasonable to suppose that the net exports of agricultural products would have been smaller and that the rate of increase in the number of persons occupied in agriculture probably would have been sustained.

CAUSES FOR MIGRATION CITYWARDS

Even more notable are the shifts of population from farms to cities in the United States during the depression years since the 1920 census. In 1922 farmers occupied 86.3 per cent of the habitable farm houses in the United States as compared with 88.4 per cent

in 1921 and 89.7 per cent in 1920. In New York there were heavy declines in the number of agricultural workers during the years ended February 1, 1923, 1921 and 1920. In Michigan there were 16 per cent fewer farm workers indicated for June, 1923, than a year before. The Bureau of Agricultural Economics estimated the net change of population from farm to town in 1922 at around 1,200,000. Subsequent migrations from southern states have attracted special attention, although reliable figures as to either the gross or the net movements are not available for all the farms in any considerable area of that region.

The fact that the number of persons engaged in agriculture reached a historical maximum in the United States at some time during the last two decades, possibly during the last decade, indicates that the capacity of the farm population for natural increase has been at high tide during the first quarter of the 20th century. For the farm population to remain constant under such circumstances it is apparent that there has been a large net out-movement of persons reared on farms or engaged in agriculture at least temporarily. For the net out-movement to exceed the natural increase, as during the depression years, there must have been a potent combination of influences at work.

Causes for the persistent decline in the proportion of occupied persons engaged in agriculture probably include the following:

(1) The increase in the proportion of the population engaged in producing commodities and in rendering regular services;

(2) The decrease in the proportion of part-time agricultural workers residing on farms;

(3) The increase in the ratio of

working years per capita to the per capita life span, so far as resulting from increased longevity of persons attaining working age;

(4) The decrease in the proportion of farm labor time absorbed in clearing, draining and fencing land and in equipping land with structural improvements;

(5) The increase in the use of city-made machinery and devices saving farm labor;

(6) The increase in the use of mineral instead of agricultural sources of fuel and dyes;

(7) The decrease in the relative prominence of agricultural products among the nation's exports;

(8) The decrease in the proportion of all immigrants who become engaged in agriculture in this country;

(9) The decrease in the proportion of farm products consumed on the farm or in nearby markets;

(10) The relative inelasticity or inexpandibility of per capita demand for foodstuffs and agricultural raw materials as compared with the relative elasticity or expandibility of per capita demand for professional services, for personal and commodity transportation, and for the conversion, fabrication and elaboration of goods; and

(11) The shifting of household manufacturing, farm shop work, and some of the road hauling to persons no longer classified as engaged in agriculture.

Causes for movement into and out of various agricultural regions and areas are partly included in the preceding list. Several other causes may be added to help account for these migrations:

(1) The effect of differences and changes in cost of transporting commodities to and from consuming markets;

(2) Differences in the relative cheapness or dearness of: (a) farm land, (b) farm capital, and (c) farm labor;

(3) Differences and changes in the availability of land resulting from irrigation and drainage.

Reasons why individuals and families have joined the cityward movements or land-settlement movements are complementary to the causes enumerated. Dependent persons naturally move with migrating breadwinners. Some breadwinners shift on account of similar action by others. Probably the majority move, however, because of rational desires to find new environments suited to their particular abilities or tastes.

ECONOMIC CONSIDERATIONS

In general the cityward drift in the United States has resulted mainly from economic considerations. These occupied an even more dominant position during the depression years. During these years farm wage scales declined to smaller percentages of their highest levels than did wage scales in most other important occupations. The diminished wage-paying capacity of employing farmers caused the demand for farm labor to allow the scales to fall as they did. Relatively high wage scales continued in occupations competing for this labor and drew down the farm labor supply to the lowest figures in several decades. The result was to force various economies in the utilization of hired labor on farms, particularly in southern plantation and western ranching areas and in districts in which cattle feeding and dairying were conducted by large-scale operators. The result was a tendency toward the utilization of land in crops requiring little farm labor, toward pasturing off crops otherwise harvested and marketed at heavy

labor cost, and toward rigorous utilization of the family labor supply. In some areas of the South and West, Mexican labor afforded relief.

Increased dependence on family labor was less marked in the South, perhaps, than in other sections. Even before the depression began, women and children in southern states were furnishing farm labor up to the toleration point. It is not surprising, therefore, that southern farmers were reported to be in favor of increased immigration from other countries.

On the whole, it is probable that the desire of farm operators to keep the children on the farm was increased as a result of the migrations of the depression years. The economic importance of child labor in agriculture was augmented. This may help to explain the opposition of some farm organizations to more stringent child labor legislation. Farm operators who displayed little opposition to Federal restriction of immigration have apparently shown strong opposition to Federal restriction of child labor. This has probably resulted less from desire to have the labor of their own children utilized in place of immigrant labor than from fear that all kinds of labor might be available only at wage scales beyond the wage-paying capacity of employing farmers, or of confidence in the salutary effect of farm labor as performed by children.

To some observers, the conversion of partially self-sufficing farm workers into city dwellers would seem to be an unmixed blessing for persons remaining in agriculture. So far as the shifted population sets up more commercial demand for farm products and removes competing producers into industries, of which the products are purchased by those remaining in agriculture, the effects of net migration to cities are of immediate benefit to those who con-

tinue to farm. To many farmers employing hired labor and to some employing family labor, however, the question is whether more assistants than competitors have not been swept away by the cityward current, and whether it might not be as well for persons engaged in agriculture to subsidize industry with cheap food and raw materials as to subsidize it with farm-reared youths and prospective heirs to farm real estate.

Persons taking up occupations which are growing rapidly receive property by inheritance from parents in occupations growing less rapidly or declining. An occupation which fails to hold its own in relative numerical growth is caused by our laws of inheritance to yield title to its accumulations to heirs who have turned to other occupations. Of the several occupations thus faring, agriculture has had the wealth of its accumulators scattered to persons in other occupations, generally resident in town, more persistently and in amounts reaching larger figures than in the case of any other occupation in the United States during the last century. Rents and purchase funds paid to town and city heirs of farm property are largely received in other taxing jurisdictions. Perhaps a quarter of a billion dollars of wealth produced annually during the last ten years was taken into other taxing jurisdictions, as a result of migration of inherited land titles incidentally to the cityward movement.

Farm parents are naturally impressed with the fact that their children leave them to go into other occupations after having received care during infancy and at least elementary education. Many young people use their farm rearing as a springing board for an early plunge into non-agricultural service. The proportion of children below working age on farms is

high relatively to the corresponding proportion of children enough older to be capable of pulling a part or all of their own weight. According to the 1920 census, 504,000 persons in every million of the farm population were under 21 years of age, as compared with 375,000 in a corresponding urban population. The migration of 65,000 mature persons to the farms, or 65,000 young persons to urban districts would be required to equalize the age distribution. The farm population can be said to have been short by about 2,000,000 adults and long by about 2,000,000 persons under 21 years of age. An excessive portion of the burden of giving our total population its high-school and grade-school education has fallen upon farm parents. The cost of this education tends to be borne according to the occupational distribution characterizing the population of the second or third decade before the pupils find places in the occupations. This circumstance would seem to justify the procedure some states follow in allotting state funds for the support of grade schools to the districts in accordance with the number of pupils enrolled, or of granting to country school districts relief from even a larger proportion of the per capita school expenditure than is afforded to town and city schools.

CONCLUSIONS

Migrations affecting the farm population have occurred in response to economic conditions. During the depression years migrations from farm to farm were reduced, the reduction implying much distress but probably causing little. Migration from farm to town attained notable proportions for the first time in the history of the United States during this period, resulting in widespread diminution in the farm population and in the number of persons engaged in agriculture.

The transfer to town of persons whose requirements of foodstuffs and other agricultural products must be supplied by persons remaining on farms will doubtless help to advance the prices of farm products. Farm operators requiring hired help, however, find this a mixed blessing. The proportion of prospective heirs to farm property, who are engaged in non-agricultural occupations, has probably been increased by the recent migrations. Even more than previously the non-agricultural destination of farm-educated youths calls for more satisfactory apportionment of the burden of taxes used in supporting primary and secondary education and perhaps in supporting some other objects of tax expenditure.

The Trend in Tenancy and Ownership

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AS time and space limits curtail very sharply the part of this important topic which can be here discussed, I wish to say at the outset that, so far as any specific study of the problem of tenancy by itself is attempted here, it will be in terms of number of tenant farms, and not size or values represented by these farms. This phase of the subject—the number of tenant families or units—is the crux of this problem so far as it affects the social influence of tenancy, and is a fair measure of its economic influence.

The number of farms occupied by tenants in the United States enumerated in the 1920 census was 2,454,804 or 38.1 per cent of all the farms therein counted. In 1910 the number of tenant farms was 2,354,676 or 37 per cent of all the farms counted in that census. In this decade the total number of farms increased by 37,000 or about 1.37 per cent, and 684,843 farms were counted in the 1920 census. With these figures in mind, the following is of interest:

- (1) Number of farms operated by their owners decreased about 23,000.
- (2) Number of farms operated by managers increased about 10,000.
- (3) Number of farms operated by tenants of various kinds (cash, share and share-cash, "croppers," standing tenants, etc.) increased about 100,000.

This increase was 4.3 per cent of the number of tenant farms counted in 1910, but only 1.6 per cent of the total number of farms.

These figures, stated in terms of nation-wide application, do not bring out the real question involved, except to call attention to the fact that tenancy is actually and relatively increasing.

There are state totals and comparisons available. In the decade 1910-20, the census figures show that tenancy decreased in, or stood nearly without change in, all the New England states, New York, New Jersey, Delaware, Maryland, Virginia, West Virginia, Pennsylvania, Ohio and Kentucky. The percentage of tenant farms increased in every state west of the Mississippi River, except in Missouri and Oklahoma, and also increased in Indiana, Illinois, Michigan and Wisconsin. In the southern states there was less change, but the percentage was high in all of the southern group due to the prevalence of the "cropper" system, and remained high throughout the decade. There was a slight reduction in Florida and in Alabama, almost no change in Mississippi and Tennessee, and an increase in Georgia, North Carolina, South Carolina, Louisiana, Arkansas and Texas.

The percentage of increase by states was as follows:

Michigan....	6.2	Kansas.....	2.0	Idaho.....	110.2
Wisconsin.....	10.6	North Carolina	9.5	Wyoming..	119.4
Minnesota...	34.5	South Carolina	11.7	Colorado..	64.0
Iowa.....	8.5	Georgia...	8.4	New Mexico..	86.8
North Dakota...	86.8	Arkansas	11.1	Arizona...	109.2
South Dakota..	35.4	Texas.....	5.8	Washington..	60.7
Nebraska.....	8.1	Montana ..	177.6	California....	38.5

In the states not named in this table, tenancy decreased in the 1910-20 decade.

The Bureau of Agricultural Economics of the U. S. Department of Agriculture made a study in the early part of 1923, covering changes in farm occupancy, ownership and tenancy in 1922,¹ and this adds some data which increases the concern which might be aroused by the above showing. This study contains a tabulation of replies received, indicating that during the year 1922 tenancy increased in the following states by the percentage indicated:

Maine.....	3	North Dakota..	7	Alabama..	1
Massachusetts ..	9	South Dakota ..	4	Mississippi ..	1
New York ..	3	Nebraska ..	3	Arkansas ..	1
New Jersey ..	2	Kansas.....	4	Louisiana ..	1
Pennsylvania.....	1	Maryland.....	2	Texas.....	3
Ohio ..	2	Virginia.....	1	Montana.....	16
Indiana.....	2	West Virginia ..	6	Idaho ..	13
Michigan.....	3	North Carolina ..	1	Wyoming ..	12
Wisconsin.....	5	Florida ..	8	Colorado ..	12
Minnesota.....	1	Kentucky ..	2	Oregon ..	1
Missouri.....	1	Tennessee ..	2		

In the states *not included* tenancy decreased in 1922. This is an indicated increase in per cent in a single year. Note the inclusion of several states which had indicated a decrease in tenancy in the previous census decade. Note also the inclusion of nearly all those states which increased in that decade, the exceptions being South Carolina, Georgia, Iowa, Arizona, Utah, Washington and California.

In an effort to bring the figures to date, I have applied the percentage of increase, as shown by the Stewart study of 1922, to the 1920 census figures. I realize that this is but an approximation, but it is the only study of which I can find a record indicating trend since 1920, which, as is well known, was a time of agricultural

inflation partially ended by 1922. The Stewart figures represent a single year's change, shown by replies to a questionnaire sent to over 10,000 correspondents located in every agricultural county in the United States. Adding these percentages to the increase shown for the decade of 1910 to 1920, and using the total to indicate the increase from 1910 to 1924, results in what I am confident is an under-statement of the existing facts rather than an over-statement.

TENANT AND OWNER FARMERS

The result of this approximation indicates that at the present time, with

the exception of Colorado and Idaho, the states in which there is less than 20 per cent of tenant farms probably include only the New England and Mountain groups. States with between 20 and 30 per cent of tenant farms are New York, New Jersey, Pennsylvania, West Virginia, Virginia, Florida, Michigan, Wisconsin, Minnesota, Colorado, Idaho and the Pacific group. States with between 30 and 40 per cent of tenant farms are Kentucky, Ohio, Indiana, Missouri, North Dakota and South Dakota, and probably Delaware and Florida. States with more than 40 per cent of tenancy divide geographically into two fairly well-defined groups:

(1) A midwestern group including Illinois, Iowa, Nebraska and Kansas.

(2) A southern group including Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi,

¹ Preliminary Report on Farm Occupancy, Ownership and Tenancy, Charles L. Stewart, 1923.

Louisiana, Arkansas, Oklahoma and Texas.

In the southern group this problem presents distinct aspects—the prevalence of the “cropper” system previously referred to. In census work “croppers” are counted as tenants. In all statistical studies of this problem the predominance of “cropper” farms in certain states introduces a factor which must be segregated and studied by itself. Space in this paper does not permit this special treatment, except to say that it probably presents the most serious problem found in the whole subject of tenancy in the United States.

The percentage figures quoted indicate the density of the problem, and when multiplied into the number of farms and the volume of agriculture, the result shows the extent of the problem. That is, an increase of 120 per cent in tenancy in Wyoming, where there are comparatively few farms, has much less significance from a national standpoint—none the less significant, however, to those immediately concerned—than the 8 and 9 per cent increase in Georgia and Alabama, where the number of farms is large.

All this assumes that a high percentage of tenancy is not a desirable condition. Probably both sociologists and economists will agree on this. However, a certain amount of tenancy is inevitable. At present, and as far in the future as it is safe to predict, a considerable percentage of tenancy is a normal, steady condition in American agriculture. But where is the dividing line between the normal and desirable, and the abnormal and undesirable? What factors affect the place of this dividing point? Tenancy in New England averages less than 10 per cent; in New York, about 20 per cent; in Iowa, over 40 per cent.

From the standpoint of the farm as a home, farmers are better off by a considerable margin than their urban neighbors, for only 28.1 per cent of farmers rent their homes, while 60 per cent of all other homes are rented. Considering the farm family as an economic producing unit, almost 72 per cent of the farmers operate their own plants. It would be very difficult to ascertain what percentage of other family units owns and operates their own means of livelihood.

Some effort to throw light on the problem as to just what is undesirable about tenancy has been made during the past few years. Gray, Stewart, Galpin and others of the U. S. Department of Agriculture, together with investigators connected with various state colleges of agriculture and departments of sociology, have made studies of census material, taken surveys of various farm areas in widely separated parts of the United States, and have prepared careful reports, some of which have been published and others made use of in articles for current magazine and periodical publication. These studies mostly concern the effect of tenancy on standards of living and on religious and social life. They are especially definite on standards of living. Three points stand out distinctly in the published theses:

(1) A considerably larger proportion of the family budget is spent for what are grouped together and called “advancement” expenditures by owner farmers than by tenant farmers.

(2) Comparatively little difference is found between the budgets of owner farmers and tenant farmers in those studies made outside of the “cropper” farmer area, except as to expenditures for “advancement.”

(3) In the areas where the “cropper” farmer system is in the majority, the differences in living conditions are

found to be very markedly in favor of the owner in almost every detail.

Among the other facts which have been developed, especially by the studies of Truesdell,² and supplemented by Gray, Stewart and others,³ is one which is of special importance, and which explains why it is inevitable and probably essential that a certain per-

centage of owners who were tenants or farm hands is far larger in the Middle Western states than elsewhere (75 per cent in Iowa in 1920).

Corroborative evidence is found in the following table, showing the percentage of tenants and owners at various ages, and this includes the "cropper" tenants.

PERCENTAGE OF FARM OWNERS AND FARM TENANTS IN VARIOUS AGE GROUPS, 1920 CENSUS

<i>Age Group</i>	<i>Owners</i>	<i>Tenants</i>
Under 25 years	2.3 per cent	12.0 per cent
25 to 34 "	14.5 "	31.1 "
35 to 44 "	24.2 "	26.0 "
45 to 54 "	26.4 "	18.4 "
Over 55 "	32.7 "	12.5 "

centage of tenancy should always exist. It is well known that a large proportion of the owner farmers of the country come to this estate through—perhaps because of—tenancy. A man who buys a farm, when entirely untrained to the work, is at a great disadvantage. Few try it. Most of them fail. Farm owners who succeed have had experience and training either on farms of relatives, or as farmer managers, or tenant farmers with or without the added training in an agricultural college. The census inquiries develop at least a part of the data to show this to be true, and tenancy forms a very important part of it.

The 1920 census shows that 58 per cent of all the farm owners counted in that enumeration had passed through a period of farm tenancy or farm work as wage hands, or both. Of the other 42 per cent it is safe to assume that at least one-half of them had worked on their father's farm or that of a near relative and that a good proportion were the sons of tenants. The per-

It is a good guess that if the number of "croppers" were not included in the computation, the number of tenant farmers in the United States over 55 years old would be well below 2 per cent.

Gray, Truesdell and others carried on this study⁴ to the figures in the 1900-10 census reports, finding almost exactly comparable results. But the study by states shows a wide divergence. Without burdening the reader with the detailed figures, this study showed:

a decreasing percentage of tenancy from age group to age group, a rapid decrease for the northern and western states, and a slower decrease for the southern states with a much larger percentage of tenancy remaining in the age groups⁵

in the southern states.

Studies in the efficiency of tenant farming compared with that of owner farming have been made with some care, and do not indicate a difference as wide or important as is generally attached to this question. In fact the indications are that the better farms,

² Census Monograph IV: *Farm Tenancy in the United States*, Goldenweiser and Truesdell, 1924

³ *Farm Ownership and Tenancy* (Separate from Year Book, U. S. D. A., 1923), Gray, Stewart, Turner, Sanders and Spillman.

⁴ *Ibid.* 2.

⁵ Census Monograph IV: *Farm Tenancy in the United States*, p. 85.

farms with greater proportion of improved land farms and livestock to land, are in the hands of tenants, as indicated by 1920 census figures.

To summarize, it appears from the general survey of the literature, the studies of census figures and independent research regarding this question that in its chief essence this problem is sociologic rather than economic. In this conclusion my personal experience and observation confirm the literature and research of others. Probably the most serious angle of the problem is that of the "cropper" farmer, and this it is evident is both economic and sociologic. The second serious aspect in the problem is the high percentage of tenancy in certain states outside of the south. In a last analysis, the seriousness of this disappears if the tenant farmers secure a fair proportion of "advancement" factors in their standard of living, and if the evolution from tenant to owner remains at the rate shown by census figures. It is not likely in the period of low prices prevailing since 1921 that this has been maintained, but few statistics are available to show this. The third, and perhaps the nationally serious, problem is: has the progress through tenancy to ownership either been halted or handicapped by other considerations?

There is a matter of national public policy involved at this time which needs both statement and explanation. It is that the ideal of American agriculture differs from that which has been accepted or reached by agriculture in any other land or time. That ideal is a maximum of farm-owning, farm-operating family units with such tenancy as exists maintained for the same purpose as apprenticeship in a skilled trade—the preparation for and the progress into ownership. This American ideal may or may not result in cheapest production or largest net revenue from land. This ideal is for

the land to be in large measure divided into one-family farms with one family to the farm, the farm owned by the head of the family. In adherence to this ideal lies one of the greatest bulwarks of national safety.

At present, however, this future American agriculture, as we conceive it, lies open to attack from three sides: (1) the demand of an overdeveloped industrialism for cheap production instead of good citizenship; (2) economic conditions which are increasing tenancy and retarding progress to ownership; and (3) economic and financial conditions which have brought about a great increase in land mortgage debt, so handicapping ownership that it is no better than tenancy. A fourth attack, of which space forbids consideration but which demands mention, is the tremendous increase in land taxation which already threatens to make ownership a mere mask for tenancy at the will of the public.

INCREASE IN LAND MORTGAGE DEBT

I will close this discussion with a brief survey of the question of the increase in land mortgage debt, because of its intimate relationship to the whole problem of tenancy and ownership. Figures seem to indicate that the interest burden at this time practically equals the rent burden, and the evidence is undisputable that its increase is far more rapid.

For the material now to be used I am indebted to the census figures for 1910 and 1920; to their analysis by Pope;⁶ to his independent studies and data; and also to his unpublished manuscript prepared for the Census Bureau, to which I have had access through the courtesy of that Bureau and the author.

Farm mortgages on owner farms were the subject of definite inquiry in

⁶ Unpublished Census Monograph on *Farm Mortgage Debt in the United States*, Jesse A. Pope.

both the census of 1910 and 1920. Farm mortgages on tenant farms were not listed in either, but have been the subject of an independent study by the Census Bureau. This study was under Mr. Pope's direction. He also conducted a careful inquiry into the amount of inflation of values found in the 1920 farm census figures, and reached the conclusion that the appraisals made at about that time by the Federal Farm Loan Board offered the most accurate index. He found these appraisals were 30 per cent below the census farm values for 1920. In using number, rather than value, of tenant farms, thus far in this paper, I have sought to avoid whatever error might lie in the census values for 1920.

From the data thus made available the following table is presented:

page the exact census figures are used for values, and the census figures and the Pope figures to indicate the amount of mortgage debt on both owned and tenant farms.

It is self-evident what a tremendous increase would be shown if, instead of the census values being used as the basis for these computations, the 70 per cent correction had been applied.

Not only has the mortgage debt risen rapidly, and much more rapidly as shown than farm values in every section of the United States, even on the inflated 1920 level, but in the same decade the mortgage debt has encroached on much land that was free from debt in 1910. I have adapted from the statistics brought together by Pope a graphic chart showing this in some detail. (See next page.)

FARM VALUES AND DISTRIBUTION OF FARM MORTGAGE DEBTS

	1910 (000 omitted)	1920 (000 omitted)	Farm Loan Board Valuation * (000 omitted)
Value all farms	\$84,801,100	\$66,816,000	\$46,421,200
Owned farms	23,823,900	42,529,400	29,770,580
Free from mortgage	14,727,200	23,823,900	16,126,110
Mortgaged	9,096,700	19,492,200	13,644,540
Amt. of mortgages	2,483,400	5,672,200	5,672,200
Tenant farms	10,977,200	23,786,600	16,640,620
Free from mortgage	8,452,500	16,276,300	11,393,410
Mortgaged	2,524,800	7,510,200	5,257,140
Amt. of mortgages	689,300	2,185,500	2,185,500
Total of mortgages	\$3,172,700	\$7,857,700	\$7,857,700
Per cent of mortgages:			
On all land value	9.1	11.8	16.9
On mortgaged land	27.3	29.	41.5

* The figures in this column are obtained by correcting all value figures on land in column two to 70 per cent. No correction is made in amount of mortgage debt.

Like the tenancy figures for the country as a whole, the above figures are not a correct index of what took place in various sections of the United States. In the table on the following

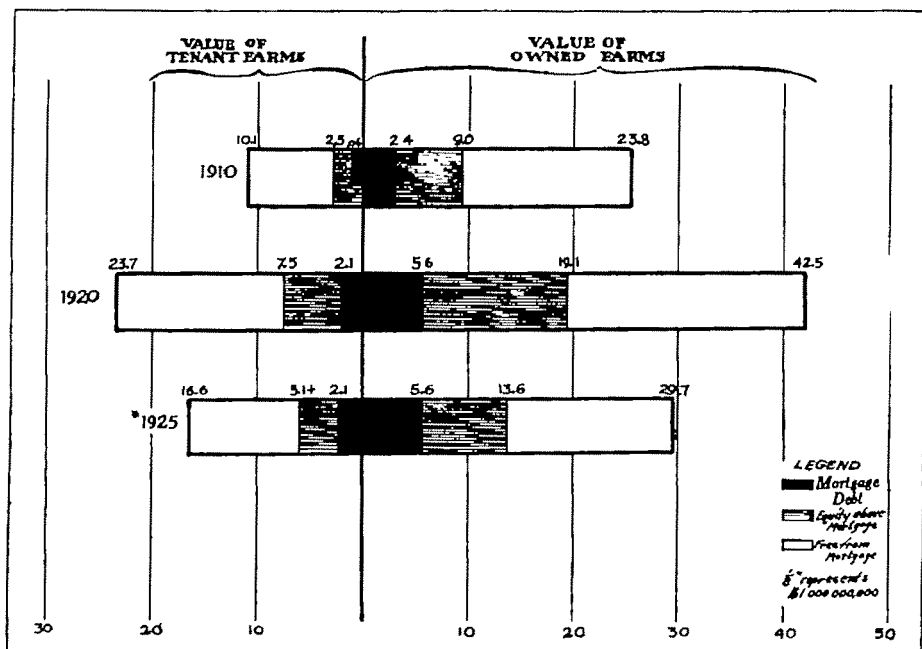
A study of such data as are available seems to indicate that 1924 values can be about estimated on the basis of a 30 per cent reduction from the 1920 census figures for farm values. Since

INCREASE IN LAND VALUES COMPARED WITH INCREASE IN FARM MORTGAGES 1910 to 1920

Geographical Section	Value	Total Mortgage	Owner Mortgage	Tenant
United States...	90.6	147.7	128.1	217.1
New England...	27.7	58	59.2	21.8
Middle Atlantic...	22.9	33.8	43.7	-0.8*
East North Central...	63.3	98.1	91.3	110.5
West North Central...	110.7	163.3	128.3	258.7
South Atlantic...	109.2	174.3	154.1	229.8
East South Central...	110.8	193.7	172.9	266.9
West South Central...	101.8	162.3	146.3	194.8
Mountain...	139.7	489.4	448.6	858.7
Pacific...	88.4	215.1	214.5	218.6

* A minus sign (—) indicates a decrease.

Chart showing relationship between value of tenant farms, and owned farms, 1910, 1920, and corrected figures for 1920 values, mortgages on owned and on tenant farms, and value of land subject to mortgage debt and free from mortgage debt.



*Corrected to 30% Depreciation in Farm Land Values.

January 1, 1920, there has been a tremendous increase in the amount of farm mortgages in the United States, but statistics are not available, and will not be available until the January 1, 1925, agricultural census figures are collected, tabulated and made ready for publication. That such a census is about to be taken is a matter for congratulation.

It is not possible to even approximate the increase in mortgage indebtedness in the past five years. In the corn, wheat, hog and range country, it will certainly amount to large figures. These figures are needed to bring this picture to its present color, without making any allowance for the increase in mortgages since 1920. But using the corrected figures for farm values, the following data are the final convincing proof of the gravity of the mortgage problem as affecting the trend of tenancy and ownership.

The increase from 1910 to date in the value of owned farms is from \$3.8 billion dollars to \$9.7 billion or *24.8 per cent.*

The increase in mortgage debt on owned farms is from 2.48 billions to 5.67 billions or *128 per cent.*

The increase in the value of tenant farms is from 10.9 billions to 23.7 billions or *116.7 per cent.*

The increase in mortgages on tenant

farms is from 689 millions to 2.18 billions or *217.1 per cent.*

We need studies on the influence of farm mortgages, as well as of farm tenancy, on the standard of living in farm homes. The figures show that a tenant farmer, outside of the "cropper" class, is more likely to become an owner, than an owner with a mortgage is to become a free unmortgaged owner.

The operators of farms valued at 65 per cent of all the farm values in the United States were paying either rent or interest on all or some part of their land in 1920. In 1910 this was the lot of only 57 per cent. In that period tenancy had increased only 3.8 per cent. The remainder of this increase is accounted for by the increase in amount and area of mortgage debt. The two subjects together constitute one of the most pressing national problems—unless the ideal of American agriculture for a maximum percentage of free family farm-owning units is abandoned.

It is doubtful if making ownership easy by either Federal, or state, or officially supervised "land credit" plans goes far toward a solution. The two problems, tenancy and mortgage debt, must be considered together. It is not possible to successfully work them out separately.

Agricultural Credit Facilities—Are They Ample?

By A. D. WELTON

Continental and Commercial Bank of Chicago

THE banking organization of the United States has undergone radical changes since 1913. The first step toward a scientific system was the passage of the Federal Reserve Act, December 23, 1913. This Act has been amended in several instances, but so far as its great purpose is concerned, the amendments are important only in aiding to achieve it. That purpose, whatever the wording of the preamble of the law, was to create an elastic currency and to give the country a system of true reserve banking.

The Reserve System, designed as an aid to business, has been of benefit to the farmer, who is also a business man, just as it has been of benefit to all other men engaged in business.

The next step in the reorganization of the nation's credit machinery was the passage of the Federal Farm Loan Act on July 17, 1916. This Act has been amended on three occasions. The first and second touched minor matters necessary to practical operations. The third, in 1923, brought into existence the so-called Intermediate Credit Banks and their affiliated institutions.

The Federal Land Banks, the Joint Stock Land Banks and the Intermediate Credit Banks, with the co-operative financial associations authorized, are all products of the Federal Farm Loan Act. All are under the supervision of the Federal Farm Loan Board and all do business only with or for the direct benefit of farmers. They have to do only with so-called rural credits.

EMERGENCY MEASURES

Other financial machinery has been set up in the meantime and has been

brought into action to improve financial conditions in the agricultural districts. It is, however, emergency machinery and will probably pass out of existence in the near future. It is interesting as showing the concern of government and bankers over a condition of localized distress and is valuable as illustration of what could be set up at any time by law or by voluntary action in an emergency.

The first agency calling for consideration is the War Finance Corporation, organized during the war for no reason that experience with it has justified. It performed no services of particular value during the war but, in the efforts of its sponsors and directors to find something on which it could function, opportunity came with the depression in the spring of 1920. Country banks, having farmer customers, were particularly hard hit. They called their loans and not infrequently offered as an excuse for their action the statement that the Federal Reserve Banks were calling on them to pay, whether the Reserve Banks were doing it or not. There is no doubt, however, that the banks were filled with slow paper, or that the farmers could not pay. The War Finance Corporation performed a real service in that emergency. It took from the distressed banks millions of dollars' worth of slow paper, but the losses of the Corporation were negligible. Instead of piling up bad paper in its portfolio, the management of the War Finance Corporation made sure, through the processes of renewal and substitution, of having the best sort of collateral. The Corporation got the cream and the borrowing banks

kept the skimmed milk. Banking, with the War Finance Corporation, was strictly business and entirely devoid of eleemosynary trimmings.

In the emergency of 1924 the Intermediate Credit Banks performed some service and a voluntary organization composed chiefly of New York, Chicago and Twin City bankers went to the rescue, also in a strictly business way.

It is unlikely that any such emergencies will recur. If they should, they would doubtless be met in similar ways, but probably not by the War Finance Corporation whose charter will soon expire by limitation.

These unusual methods are likely to become as obsolete, in the near future, as the Aldrich-Vreeland Emergency Currency Act, or the older method whereby the Secretary of the Treasury made deposits of public funds in banks "for crop-moving purposes." Under the old banking scheme that was the popular way of returning funds, which the government collected regardless of its needs, to commercial channels. Often such deposits were well made and often they had a strong political odor. The practice survived the establishment of the Federal Reserve Banks, but not long. Once those banks were in full operation such conduct became patently political and it just naturally curled up and died after "crop-moving funds" were deposited in the banks of Washington, D. C., to relieve the distress of savings depositors in a bank on the verge of insolvency.

PERMANENT AGENCIES

For the farmer, then, since 1913, the following banking agencies, sound in form and design and permanent in character, have been authorized and established:

The Federal Reserve Banks.
The Federal Land Banks.

The Joint Stock Land Banks.
The Federal Intermediate Credit Banks.

RESERVE SYSTEM PRIMARILY COMMERCIAL

As was stated previously, the farmer is participant in the benefits of the Federal Reserve System. The farmer is a user of commercial credits and, indirectly but not less truly, he benefits from the order, precision and certainty that the Reserve System brought to commercial banking. The financing of the cotton crop, the movement of the grain crops, the installation of acceptances, the assurance of ample supplies of currency were matters to which the framers of the Reserve Act and the supervisors of the System gave early and earnest study.

Considered in its relation to the farmer it must be remembered that the Federal Reserve System is frankly a scheme of commercial banking and nothing else. It can make only short time loans against the security of commodities or merchantable goods. The making of loans against government bonds and securities is really a distortion of the purposes of the Act. There were scant amounts of such securities in existence when the Act was passed. The war and its financial consequences were beyond the contemplation of the framers of the Act. Loans secured by government war obligations were the result of war financing and the sooner they disappear the better it will be. However, nothing is clearer testimony of the efficiency of the Reserve System than its proved capacity to carry this burden and at the same time meet the requirements for commercial credits.

RESERVE BANKS AND DEFLATION

Any discussion of the operations of the Federal Reserve Banks in relation

to the farmer would be incomplete without reference to the assortment of wild charges and allegations about its "deflation of the farmer." Those charges and allegations have been reiterated in the face of the facts and the figures. In the liquidation that began in the spring of 1920, the farmer suffered in common with all business men, perhaps no more, perhaps a little less.

The charges are that the Federal Reserve Board, under some prompting of ignorance or malice or both, forced deflation and made no effort whatever to ameliorate the farmers' woe.

The facts are that neither the Federal Reserve Board nor the Federal Reserve Banks did any such thing. Both loans and Federal Reserve notes were expanded and again expanded during the period of distress. The peak of the expansion was reached after the period of depression had been under way for a number of months.

The fiercest criticism of the conduct of the Reserve Board and Reserve Banks has come from Iowa. The borrowings of Iowa banks, members of the Reserve System, reached their peak in January, 1921, and had advanced steadily to that peak from the February preceding. Between May 15 and December 11, 1920, the price of Iowa corn declined \$1.38 a bushel, but the loans to Iowa banks expanded \$33,142,000 in the same period. While the price of Iowa hogs was declining 44 per cent between September 20 and December 11, 1920, loans to Iowa member banks expanded 37 per cent. The figures could be given for other commodities, but those cited show that it was the policy of the Reserve Banks to give all assistance possible. And they did in fact give such assistance.

The case cannot be fully stated, however, without considering the finan-

cial burden that was placed on the Federal Treasury by the war and the policy of the officials in charge. The Reserve Board was under great and constant pressure from those officials. The belief now is that the Federal Reserve Board would have been glad to take steps early in 1919 to check inflation and, had it done so, it would have avoided some of the deflation which was certain to come and did come a little over a year later.

By the middle of 1919—after the sag in business the first two months of the year and the precipitate rise immediately following—most economists and some business men and bankers felt that the inflation which was plainly under way should be checked. The most effective warning and preventive, they agreed, would be a moderate increase in rediscount rates. These far-sighted observers felt that an ounce of prevention was necessary. But it is an open secret that the Treasury Department felt differently.

The Treasury wished to keep up the price of Liberty Bonds, which meant keeping interest rates down. To keep interest rates down it put pressure on the Reserve Board to keep rediscount rates down. It disregarded the opinions of the ablest students of business and banking. Inflation swept on unchecked.

On November 3, 1919, after speculation in Wall Street had reached its peak, the New York Reserve Bank raised its rediscount rate from 4 to 4½ per cent. It was not until February of 1920 that the rediscount rate on 90-day paper was raised from 4½ per cent to 6 per cent by the New York Reserve Bank. On May 29, it was raised to 7 per cent. By that time inflation had gone so far that the drop into depression had begun. It was the old story of locking the stable after the horse had been stolen. Mr.

Benjamin Strong, Governor of the Federal Reserve Bank of New York, has virtually admitted this to be the case in his testimony before the Joint Commission of Agricultural Inquiry (pp. 502-503):

Governor Strong. Through all of that period our policy was necessarily affected by the necessities of the Treasury, but on the other hand, I believed then, and I believe now, that the basis, the fundamental basis of restraint upon speculation rests upon the cost of credit, and that the policy of raising our rates was necessary and justified, and without the adoption of that policy this expansion which took place would have gone to unparalleled levels.

Senator Lenroot. Then leaving out of the question for the moment the necessities of the Treasury, if this action had been taken directly following the Armistice we would have been much better off? Or I may put it this way: As soon as it was apparent that this wave of speculation was on, following the Armistice, if this action had been taken we would have been much better off?

Governor Strong. Well, sir, I wish I might answer that question directly and categorically, but it is an exceedingly difficult one to answer, Senator.

Senator Lenroot. Well, if it had the effect in December, 1919, that you say, would it not have had the same effect earlier without reaching these high levels?

Governor Strong. Yes; but it might have had very much more unfortunate effects in other directions.

Senator Lenroot. I was leaving out of consideration the Treasury for the moment.

Governor Strong. If you leave out of consideration the Treasury—and that is, of course, a most exceedingly important consideration, affecting the welfare of the country—

Senator Lenroot. Yes—

Governor Strong (continuing). I should say that an increase in discount rates at the period when the decline was suffered, from January to March of 1919, to which I have referred—

Senator Lenroot (interposing). Yes; that is what I mean—

Governor Strong (continuing). Would have been as close to an ideal 100 per cent policy of perfection as could have been adopted.

Senator Lenroot. Then, looking back—and hindsight is always better than foresight—would it not have been better to have paid a higher rate on our Treasury obligations and put in that policy back in 1916?

Under this interpretation of conditions there may be a division of responsibility but, in any event, the Reserve Banks are exculpated even if the Reserve Board erred in yielding to the Treasury and the Treasury erred in its desire to keep down interest rates on its obligations. In any event the farmer, however disastrous the consequences to him, merely bore a share of the common burden.

FARM LOAN ACT EXCLUSIVELY AGRICULTURAL

The Federal Farm Loan Act has no purpose at all except to help the farmer. So far as may be, it points the way to a solution of the problem of investment banking for the agricultural sections. It has, of course, made inroads on the business of the private lenders on farm mortgages, but these concerns still do the greater part of the business.

The farm mortgage indebtedness on farms operated by their owners was placed at four billion dollars in the census figures of 1920. These mortgages were divided into classes according to lenders as follows:

Owned by insurance companies	\$1,000,000,000
By savings banks, trust companies and local banks	1,000,000,000
By institutions, endowments, etc.	300,000,000
By private individuals	250,000,000
Local loans, real estate contracts, etc.	1,450,000,000

Recently the total farm mortgage indebtedness was placed at nine billions by a statistical bureau. From the time of their organization until October 31, 1924, the Federal Land Banks had made 332,907 farm loans, aggregating \$1,019,444,148. The 66 Joint Stock Land Banks had made 61,500 loans aggregating \$478,326,855. The total number of loans made by these agencies, therefore, was 394,407 as of October 31, 1924. The total amount of these loans was \$1,497,771,003, or about 16 per cent of the nine billion dollar total mortgage indebtedness.

Omitting the sentimental and altruistic arguments with which the discussion of every rural credit scheme is heavily charged, it is interesting to note that the average life of a farm loan made by loan brokers is about four years. Under the old plan there were in renewals and new loans every year not less than one billion dollars in mortgages on which commissions and expenses of various kinds were collected by the local agents. Such costs often amounted, as determined by careful estimates, to \$50,000,000 a year.

Under the old order the greater part of what are termed "commercial mortgages" passed through from two to ten hands before reaching the final investor. Each of them took his toll and the toll was governed only by the necessities of the borrower.

It has been said that there are 6,000 mortgage dealers in the United States. If country lawyers, land brokers and any one who hangs out a sign, "Money to Loan on Farms," are all counted, the estimate is perhaps correct, but it is doubtful if there are 500 individuals and concerns in the country whose financial standing, experience and integrity are sufficient to warrant the confidence of the public.

Long before the Federal Farm Loan Act was passed, the short term farm

mortgage as an instrument of credit had outlived its usefulness. It may have had a fair place in the financial scheme in the early days but, although based on the soundest of values, it never became a liquid asset in the hands of the investor. It could be sold if it chanced that the owner could find some one who wished an investment of that kind for that amount at that time. And the investor living hundreds of miles from the farm could have no personal knowledge of the security. There were no rules, no supervision; the investor was dependent on the mortgage dealers or loan agents and their integrity might be dulled by their interest in making sales. Of course there were cases of forgery, duplication of mortgages, misapplication of funds, etc.

Under such circumstances the farm mortgage could have no assured position in the investment field. And the farmer-borrower was always at a disadvantage. He was compelled to sign obligations which he knew he could not meet at maturity and to submit to all sorts of exactions. By a system of overlapping mortgages and mixed maturities it was possible to split up a sizeable mortgage on a good farm so that its owner would always be at the mercy of the loan agent.

One of the evil influences of this system, and it was a system despite the number of reputable and responsible concerns in the farm loan business, was the refusal of thousands of tenant farmers to continue in the business of farming. Another influence was to tempt competent and experienced farmers into land speculation. They knew they could never meet the loans on the terms laid down; they counted, therefore, on selling the land they had mortgaged. Their best efforts were given to putting land in condition to sell that they might make a profit as large and

as soon as possible. Their local interests were negligible or fleeting and they were ready to move on very short notice.

It is not surprising that the Federal Farm Loan Act stated as its purpose "to provide capital for agricultural development," not in the interest of any class but for the benefit of the whole nation. It was intended to correct the evils and the maladjustments wrought by the old system. This was to be accomplished not only by providing another method of borrowing but, by competition and by example, to force the old system to correct its ways and eliminate the abuses.

Interest rates, commissions and the expenses of making loans were therefore reduced, eliminated or made certain. Investigations and appraisals were systematized. Through organization of co-operative associations, membership in which was necessary before application for a loan could be made, and compulsory ownership of land bank stock by a borrower, neighbors were interested. Supervision by the Federal Farm Loan Board added a new assurance and, most important of all, the issuing of bonds against mortgages deposited with that Board provided desirable securities in convenient denominations for the investment market. Moreover, the amortization of loans by convenient payments over a period of 33 years gave borrowers assurance of rewards for permanency. Farmers were to be left the task of conducting the business of farming.

An opening was left for responsible and experienced farm loan men to continue in business under the new scheme by organizing Joint Stock Land Banks. Thus new and better agencies for making loans on farm mortgages were devised and the old ones were to be put on their mettle if they were to survive.

DIFFICULTIES OF FEDERAL LAND BANKS

It would be beyond the realm of practical banking if such a scheme of lending money could be brought into existence without troubles or could be got into operation without grief. The troubles indeed were many and the griefs disturbing. The Federal Farm Loan Board was made a bureau of the Treasury Department. This was a departure from precedent because the Federal Reserve Board is an independent organization. Whether this was fortunate or unfortunate, it opened the door for accusations of paternalism and class favoritism. The Federal Land Banks were barely under way when the nation became involved in the war. The country's financial power was being tested and, in the face of entire newness and some opposition, the first issues of farm loan bonds met with scant favor.

The Treasury was given authorization to buy them as it was also authorized by the law to provide the capital for the Federal Land Banks. Of the original \$9,000,000 stock of the twelve Land Banks the Treasury still holds \$1,670,000 and on July 31 last it still owned \$101,000,000 of bonds. The Federal Farm Loan Board is still confronted by the task of ridding the Treasury of these securities.

Naturally political difficulties were plentiful. Many members of Congress saw or thought they saw in the Federal Land Banks an opening through which other paternalistic schemes could be passed. There was a great coterie of public men and agricultural leaders who were blind to the fact that financial institutions must be conducted according to sound banking principles. They had been swayed by the arguments that the Federal Land Banks were some kind of charitable enterprise

and, by magic or mystery, could make loans to insolvents with safety. In all such plans there are promises in the preliminaries that lose their flavor in the practice. The conduct of the Federal Land Banks, or any banks, leaves no room for sentimentalism.

The old farm mortgage men were annoyed by the new order and annoying to it. They were particularly concerned over the exemption of the bonds of both Federal Land Banks and Joint Stock Land Banks from taxation. The Farm Mortgage Bankers Association has been the most active and persistent advocate of legislation that would change this or a constitutional amendment that would forbid it. Superficially it may seem unfair, but there is so much to be said against a change that, as yet, none has come. And it may be doubted if a change ever comes. When the law says that the loaning bank may not charge on its mortgages a rate of interest "exceeding by more than one per centum the rate of interest established for the last series of farm loan bonds issued by them," and the payment of the bonds is guaranteed by all their resources, there must be some inducement held out to bring capital to such enterprises. The only compensation the government could offer was to have the bonds tax-exempt. There may be some other way but it seems not to have been suggested. Under our imperfect tax laws, farm mortgages are not declared for taxation. If they were, no one could afford such investments. It is part of the business of the loan broker to assist his client to evade taxes. But this broker or lender is the most vociferous opponent of tax exemption for bonds issued by Federal Land Banks and Joint Stock Land Banks.

LEGAL STATUS OF JOINT STOCK LAND BANKS

The Joint Stock Land Banks were off to a bad start. The first one was organized at Sioux City, Iowa, April 4, 1917, less than a year after the passage of the Act. Between that date and December 4, 1919, thirty-one Joint Stock Land Banks were chartered. Charter No. 32 was granted to the Columbus, Ohio, Joint Stock Land Bank, February 23, 1922. In the meantime came the legal test.

There were early doubts of the constitutional power of Congress to set up any kind of banking system or banking machinery. The point was settled in the cases of *McCulloch v. Maryland* (4 Wheaton 316) and *Osborn v. Bank* (9 Wheaton 738) by Chief Justice Marshall, who found authority for such action by Congress in the broad general powers conferred by the Constitution upon the Congress to levy and collect taxes, to borrow money, to regulate commerce, to pay the public debts, etc.

The makers of the Federal Farm Loan Act anticipated legal proceedings by making the Federal Land Banks government depositaries and their bonds the instrumentalities of the government. However, a suit was brought. It was claimed that the Federal Farm Loan Act was beyond the constitutional power of Congress.

A decision was handed down by the United States Supreme Court in February, 1921, affirming that of the District Court of the United States for the Western District of Missouri.

After that decision the organization of Joint Stock Land Banks proceeded with some rapidity. Forty were organized in 1922 and nine in 1923. Six have been liquidated, one is not operating and there have been several consolidations.

MANAGEMENT OF FEDERAL LAND BANKS

If the management of the Federal Land Banks has been as faulty as its hostile critics declare, the evidence must be found outside the statistics. Anything new is likely to show defects. There is usually a wide spread between what the law authorizes and what is learned from experience. It was a reasonable expectation that politics would handicap operations in the first stages of practice, but it is true that the percentage of the amount of loans made by the Federal Land Banks to those foreclosed has been less than three-fourths of one per cent. In the Joint Stock Land Banks it has been about one-half of one per cent. Among life insurance companies which make farm loans the percentage is much smaller, in several cases as low as 5-1000 of one per cent.

INTERMEDIATE CREDIT BANKS

However, the friends of the farmer were not satisfied to solve his investment banking problems by the Federal Farm Loan Act and his commercial banking problems by the Federal Reserve Act. They insisted that the farmer still had inadequate credit facilities. Whenever the farmer is in a bad way, the cause for it is not sought in drought or flood or plant disease or cattle disease, but in the credit field. Lack of credit, usually credit to the insolvent or half solvent, is held the cause of all the farmer's ills. If, by any chance, it isn't the cause, it is always the remedy. So the Federal Intermediate Credit Banks came as the result of an amendment to the Federal Farm Loan Act, entitled the Rural Credits Act of 1923.

Even a casual reading of this Act shows that the Intermediate Credit Banks are similar to the War Finance

Corporation in scope and method of operation. In other words, the Intermediate Credit Banks carry over into the permanent agricultural credit machinery the facilities offered by the emergency legislation, Section 24 of the War Finance Corporation Act. This was known as the agricultural credits section.

Loans may be made by the Intermediate Credit Banks for not less than six months or more than three years' duration. Loans by the War Finance Corporation could have the same life.

Loans may be made by the Intermediate Credit Banks to banks, trust companies and co-operative associations—to substantially the same organizations that the War Finance Corporation made loans.

The capital stock of the Intermediate Credit Banks "shall be subscribed, held and paid by the government of the United States." In other words, the capital is furnished by the government, just as it was in the case of the War Finance Corporation. Each of the twelve Federal Intermediate Credit Banks has an authorized capital stock of \$5,000,000.

It is unnecessary to give further details about the Intermediate Credit Banks. The points of similarity to the agricultural credits section of the War Finance Corporation are striking. The latter was passed to take care of "frozen" agricultural credits that could not properly be carried by the Federal Reserve Banks, because that would have destroyed the commercial character of these banks.

Those students who have contended that the commercial character of the Reserve Banks should not be impaired by having grafted on to the Reserve Act an amendment requiring loans of an investment, or semi-investment nature, can find relief in the fact that the Intermediate Credit Banks have re-

moved this danger. Moreover, there is doubtless a need for just this sort of banking, which is not strictly commercial and yet is not in the same class as the mortgage loan business.

The twelve Federal Intermediate Credit Banks, on November 29, 1924, had direct loans outstanding to the amount of \$44,258,748. Rediscounts were listed as follows:

Agricultural Credit Corporations.	\$10,841,735
National Banks.....	28,696
State Banks.....	875,242
Livestock Loan Companies....	7,443,629
Savings Banks and Trust Companies.....	173,444
Co-operative Associations.....	.....
Total	\$19,864,746

The total of direct loans and rediscounts was \$63,623,872, a relatively small amount as compared with the loans of just one of the largest banks in the Middle West.

CURRENT ASSUMPTIONS

The Federal Intermediate Credit Banks came into legal existence as the result of a pair of theories. One is that the ordinary banks in the agricultural districts cannot give long term credits. The second is that the term of paper eligible to rediscount by the Reserve Banks is too short for the farmer. The former will remain a theory until actual figures have been obtained not only

from those who complain about not getting long term credits, but from those who meet or wish to meet their notes when due. Too much in regard to credit to farmers has been taken for granted; too much of the gossip which passes for information has come from the political friends of the farmer.

The conditions which mark paper as eligible for rediscount at the Reserve Banks have always been the subject of heated argument. The initial mistake was in fixing any term as a condition to eligibility. In practice the average maturities of paper rediscounted marks the character of the business done in the Reserve District. It is shortest usually in the Boston District and longest in Minneapolis. If the maturity of paper offered for rediscount were stricken from the law and officials of the Reserve Banks were to use their discretion in accepting paper offered, the average maturities would probably stand about where they do now.

There will probably be more rural credit legislation and perhaps further development of the Intermediate Credit Banks. There are many students of the farm credit situation who have concluded that the greatest reform would be the adoption of the Chinese custom of paying all current debts once a year. Such a scheme would perhaps be more beneficial to the farmer than to keep him eternally at Exior's task.

Farmers as Managers¹

BY W. M. JARDINE

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FARMING is a complex business. Many forces, some of which the farmer can control, others of which he cannot control, enter into it. Managerial ability in farming consists in controlling the controllable forces and adapting the farm business to the uncontrollable ones.

The farmer must exercise managerial ability from the time he starts the farm enterprise. He must decide the quantities of land, labor and capital to be combined in the farm business. This constitutes organizing the business. In organizing it he not only determines the size of unit to be operated but chooses the enterprises to be included. These enterprises are crops and livestock.

Following the organization of the business comes the problem of operating it efficiently. In operation the farmer seeks to secure the most efficient production of crops and livestock and to dispose of these products advantageously.

In both organization and operation of the farm business the farmer is confronted with the problem of securing the funds needed for these purposes. This is his finance, or credit, problem.

The success attained by farmers is in proportion to the wisdom they exercise in organizing their business—that is, in choosing the combination of land, labor and capital and in devoting these resources to the production of

crops and livestock. A proper start means as much in farming as in any other business and efficient operation is rewarded in proportion to the size of the business unit fully as much as in any other industry.

I. ORGANIZING THE FARM BUSINESS

In organizing the farm business the farmer chooses land, labor and capital and then apportions these resources to the production of various kinds of crops and livestock. There is abundant evidence that farmers are using managerial ability in the organization of their business.

Choosing Land

In choosing land farmers who own more land than they wish to operate are subletting some of it. Other farmers who do not own land or who do not own as much land as they wish to operate are leasing from landowners. In 1920, 8.7 per cent of all farmers in the United States owned some land and rented additional land; 38.1 per cent did not own any of the land which they operated, but rented all of it. In 1920, two and a half million tenant farmers were farming 35 per cent of the improved farm land in the United States. An apprenticeship in farming, as a tenant, is one way to land ownership. A tenant must exercise a high type of managerial ability in order to pay for his farm. Once the land is his, there is little chance of his losing it if he knows how to handle his business. On the other hand, many young men inherit farms. Often they lose the farms acquired by inheritance simply because they do not have the ability to

¹The author desires to acknowledge the valuable assistance of Waldo E. Grimes, Professor of Agricultural Economics, and Nelson Antrim Crawford, Professor of Industrial Journalism, Kansas State Agricultural College, in the preparation of this paper.

farm efficiently; in other words, managerial ability.

Experience has demonstrated that the medium large farm can be more economically and efficiently operated than the smaller farm. The changes as a result of renting land are one indication of farmers' recognition of this fact. A further indication of such recognition is found in the movement toward larger farms. In 1910 the average farm in the United States contained 138.1 acres. In 1920 it contained 148.2 acres. The improved area per farm increased from 75.2 acres to 78.0 acres. In the corn and wheat belts, which are the heart of the agricultural section of the United States, the change toward larger farms was even more striking. In the West North Central group of states, which includes Minnesota, Iowa, Missouri, North and South Dakota, Nebraska and Kansas, the average farm contained 209.6 acres in 1910, 234.3 acres in 1920. The size of farm in this section of the country has steadily increased since 1880, when the average size was 142 acres. In Iowa the average size was 133.5 acres in 1880 as against 156.8 acres in 1920. In Kansas the size has increased since 1870, when the average farm comprised 148.0 acres, until in 1910 it contained 244.0 acres and in 1920, 274.8 acres. From 1910 to 1920 the improved acreage per farm in Kansas increased from 168.2 acres to 185.1 acres.

Choosing Capital

In choosing the amount of capital to invest in the farm business, many farmers borrow funds. Other farmers have surplus funds to lend. In either case the amount of capital in the business is being adjusted to the needs of the business as understood by the operators. Thus managerial discretion is being exercised.

In recent years improvements have been made in the credit facilities available to farmers. The Federal Land Banks and the Intermediate Credit Banks are providing farmers with types of credit that more nearly meet the needs of the farm business. Farmers have taken advantage of these facilities. The influence of the Federal Land Banks on the credit situation has been notable. This influence would not be felt if farmers were not alert, as managers, to take advantage of this improved opportunity to secure credit. In addition to borrowings from these strictly agricultural credit institutions, farmers are utilizing the Federal Reserve System. On June 30, 1924, the Federal Reserve Banks held more than \$86,000,000 in agricultural and livestock paper. In addition farmers were undoubtedly borrowing much more from their local banks on paper that had not been discounted with the Federal Reserve Banks.

Employing Labor

In hiring labor executive functions are likewise exercised. Farmers employ laborers if needed. Some farmers sell their services during a portion of the year because they do not need the time for their own business. The smallness of the individual farm unit makes its labor problems less than those of industrial plants. There is abundant evidence, however, that the farmer plans his labor and manages it efficiently. Most of this evidence pertains to the operation of the farm business and will be considered later.

There is a high degree of fluidity of land, labor and capital in farming. These factors of production tend to flow to those farmers who have ability to use them to advantage; that is, to those who take into account the factors fundamental in the organization and operation of a successful farm business.

CHOOSING CROPS AND LIVESTOCK

The second problem in organizing the farm business consists in choosing the crops and livestock to be produced with the land, labor and capital included in the business. Since the World War farmers have been confronted with a gigantic problem in choosing enterprises. Enterprises that were profitable during the war became unprofitable after the war. Farmers have adjusted themselves to these changed conditions. The following statement by the U. S. Department of Agriculture, issued on June 1, 1924, pays a deserved tribute to the expertness of farmers in adjusting their business policies:

The community at large hardly understands how far-reaching and skillful a readjustment farmers have made in the major lines of production. They have obeyed economic signals as expertly as any industry ever did. Only, this takes time in agriculture; no board of directors can shift overnight the cropping system and growing animals on six million farms.

In making these adjustments the farmer is choosing those enterprises that will give him maximum utilization of his resources consistent with the profits capable of being derived from their use. He considers his fixed resources in terms of land owned, buildings erected, equipment on hand, and labor available. Often he makes changes slowly—a wise policy, since abrupt changes might result in undue loss, such as inability to use buildings and equipment on hand.

Many farmers endeavor to utilize their resources to the fullest possible extent throughout the year. The distribution of labor is being given more and more attention by farmers. The increase in dairy cattle and in the production of dairy products is abundant evidence of the farmer's attempt to

secure a better utilization of his labor and a better market for bulky and waste feeds produced on the farm. The number of milk cows two years old and over on farms in the United States increased 6 per cent during the year ending June 1, 1924. In the West North Central states the increase was 8.8 per cent. In this, the wheat growing section of the country, the turn to dairying illustrates the degree to which farmers are endeavoring to improve their situation by choosing those enterprises which are relatively more profitable. A further illustration is the reduction of wheat acreage in the United States from 75 million acres in 1919 to less than 54 million acres in 1924.

For many years the farmers' managerial ability has been in evidence in the adoption of new crops as soon as they were definitely shown to be superior to the old ones. Alfalfa is an example. In 1909, 4,707,146 acres of alfalfa were grown on 283,012 farms in the United States. By 1919, there were 8,624,811 acres on 542,549 farms. Kafir was introduced into the Middle West about 1885, milo at some time prior to 1900. These crops soon proved their value and farmers adopted them, growing 1,635,153 acres in 1909 and 3,619,034 acres in 1919. Sudan grass, primarily a hay and forage crop, was introduced into the United States in 1909. By 1923 Kansas farmers were growing 156,718 acres of this crop. The significance of this figure is appreciated more fully when it is realized that few farms grow more than ten or fifteen acres of this crop, while many grow less than five acres.

Another outstanding instance of managerial ability displayed by farmers is found in the increase in acreage of alfalfa, one of the crops heretofore mentioned, in the last twenty years in the North Central portion of the

United States. It was formerly thought that alfalfa could not be successfully grown in Wisconsin, Michigan and other northern states. As dairying developed in this region, great quantities of alfalfa hay were shipped in from western states for feed. The increase in freight rates on alfalfa increased the price of hay in this territory to a point where it could not be fed at a profit. The northern experiment stations, however, demonstrated that it was possible under their conditions to grow alfalfa successfully on many types of soil by using inoculation, lime and phosphatic fertilizers together with hardy strains of American-grown seed. The application of this information by the farmers of Michigan, Wisconsin, Minnesota and other states has resulted in the growing of alfalfa on an extensive scale. In Wisconsin, for example, there were 18,000 acres of alfalfa in 1909. In 1919 the acreage had increased to 62,000 acres; in 1921, to 121,000 acres. It is estimated that now, in the fall of 1924, the total acreage of alfalfa in Wisconsin is approximately 400,000 acres.

The introduction of Brahman cattle is responsible for a large and successful cattle industry in the Gulf Coast region, particularly in Texas. Brahman cattle are highly resistant to Texas fever, which causes heavy losses among beef and dairy cattle. The Brahman cattle themselves are not good beef animals but the first cross as well as the later crosses carry the beef qualities of the American breeds. These crosses retain resistance to Texas fever, though in less degree than the pure Brahman. It is therefore the common practice of cattle men to use pure Brahman bulls in herds of one-half, one-fourth, and one-eighth Brahman cows.

In organizing their farm businesses and in selecting the enterprises to be

included in them, farmers exercise a high degree of managerial ability. This is not all of their problem, however. After determining on the farm organization both with reference to the size of the unit in terms of quantities of land, labor and capital to be included, and upon the enterprises to be grown with these resources, the farmer must conduct his business from day to day. This, the field of farm operation, presents still further opportunities for the farmer to exercise managerial ability.

II. FARM OPERATION

Farm operation consists in the production of crops and livestock and the disposal of these products. It involves selection of varieties, methods of cultivating the soil and caring for the crops, selection and breeding up of animals, methods of feeding, managing and caring for these animals, means of plant and animal disease control, day-to-day management of farm resources, such as labor and equipment, and marketing of the products. In the operation of their business farmers have not been slow to take advantage of improvements that would result in greater returns.

IMPROVEMENTS IN CROPPING PRACTICES

Unless the land produces good yields of high quality it is out of the question to try to farm in these days of high-priced land—and the days of cheap land are gone. Farmers can no longer succeed with out-of-date practices. Many illustrations may be cited of improvements made by farmers in these respects. If it seems that emphasis is placed upon the improvements made by Kansas farmers, it should not be assumed that in other parts of the United States the farmers have not likewise been improving their

farm business; illustrations from Kansas are used simply because the writer is most familiar with them.

Eighteen years ago experimental work in the preparation of the wheat seedbed was started by the Kansas Agricultural Experiment Station. The results of these experiments showed conclusively the value of early deep plowing. Farmers have taken advantage of the results of these experiments, are plowing deeper and preparing the seedbed for wheat much earlier, and are securing higher yields as a consequence.

Fifty years ago the farmers of the hard winter wheat belt were planting spring wheat and soft wheat. Early records show that large acreages of spring wheat were sown—even in the eastern part of the hard winter wheat belt—as late as 1880 with losses that may be easily imagined when one is reminded that in experiments at Manhattan, Kansas, the average yield of spring wheat for eighteen years is only 8.7 bushels per acre on ground that in the same period produced an average of 32 bushels of winter wheat to the acre. In a similar experiment at Hays, Kansas, for twelve years spring wheat produced 4.8 bushels per acre and winter wheat 17 bushels per acre. In a twelve-year test at Manhattan, Turkey, a variety of hard winter wheat outyielded Fulcaster, one of the best soft wheats, by nearly five bushels per acre, while Kanred, a new strain of hard winter wheat, in the same period outyielded Turkey in turn by three and one-half bushels per acre. Today, Kansas farmers have abandoned spring winter wheat, and of the latter they are growing the hard varieties that produce the highest yields.

In the South certain discoveries and scientific factors have had decided influence on the agriculture in certain regions. For example, the development of

Blue Rose rice, which was first offered to growers about 1914, was so favorably received that within five years it became the leading variety in Texas and in the prairie rice section of Louisiana. It is thought by many that the introduction of this variety has made possible the continued profitable production of rice in this part of the United States.

Control of Insect Pests

Farmers are controlling insect pests and plant diseases that formerly reduced materially the profits in farming. The average yield of potatoes in the Kaw River Valley of Kansas for the years 1914-16 was 97.9 bushels per acre. Because of plant diseases, the yields dropped so that the average yield for the years 1917-19 was only 88.4 bushels. The growers of potatoes turned to their Agricultural Experiment Station for help. Control measures based on experiment and recommended by the station are now followed by many of the potato growers in this region. Sixty-five per cent of the commercial acreage is now planted with treated seed. In 1920-23 the average yield was 108.5 bushels per acre.

Insects are limiting factors in crop production and farmers are taking advantage of control measures discovered and developed through experiment by specialists. Among the insects particularly injurious to crops in the Great Plains area are the Hessian fly, chinch bug and the grasshopper. A program for the control of each of these pests has been developed and is being put into practice by the farmers of the region.

It is a well-known fact that one of the essentials of profitable fruit growing is effective insect control. There are few, if any, areas in the United States where fruit can be grown with-

out spraying. Not many years ago, orchardists were cutting out trees because the depredations of insects had made fruit production unprofitable. Control measures were devised and have been put into practice until now no intelligent orchardist plans to produce fruit without spraying.

Economical Production Secured

Better varieties and better methods make possible more economical production. The Department of Agricultural Economics of the Kansas Agricultural Experiment Station ascertained the quantities of labor and materials required to produce wheat on each of sixty farms in Harvey County, Kansas. Twenty of these farmers secured yields of 20 bushels or more per acre and grew 100 bushels of wheat with 53 hours of man labor. Thirty-two farms had yields of 15 to 20 bushels per acre and grew 100 bushels with 63 hours of labor. Eight farms obtained yields of less than 15 bushels with 93 hours of labor. Other materials were used in similar proportions. The higher yields were due not to chance but to good farming. The farmers who secured the higher yields were the better managers and had taken advantage of more of the improvements available to them.

The effect of crop improvements is shown in the efficiency of production in 1920 as compared with 1910. The Bureau of Agricultural Economics of the U. S. Department of Agriculture computes that each farm worker is now producing 18 per cent more in crops than in 1910.

Another factor entering into increased production is the greater use of machinery on the farms of the United States. Kansas data serve to illustrate the improvement in this regard. In 1915 there were 2,493 tractors in Kansas. On March 1, 1923, there

were 24,120. Other machines that are more widely used than in earlier years include the small combined harvester and threshers, now commonly used in the hard winter wheat belt; two-row listers and cultivators; and two and three bottom plows.

Improvements in Livestock

In livestock production the same tendencies to improve production are evident. The best dairy farmers, for example, are making an effort to breed high-producing cows and feed and care for them so that they can produce economically. The first cow-testing association was formed in 1906. The number increased until on July 1, 1924, there were in the United States 627 associations made up of 16,356 herds, totalling 277,010 cows. To take a single state, the average of Wisconsin cows is 190 pounds of butterfat. Wisconsin cow-testing association cows average 273 pounds of butterfat.

Farmers are using better animals than they were a few years ago. Better stock is reaching market. Young cattle are going to market today heavier than they were twenty-five years ago. Farmers are using more protein in their feeding operations, both for cattle and hogs. This protein increases the efficiency of the ration.

In 1908 three bull associations were formed in Michigan. In 1923 there were 218 bull associations in the United States. The daughters of 70 association bulls produced 22 per cent more milk and 25 per cent more butterfat than the average of their dams.

Sales Policies

In planning the disposal of their products also, farms are using managerial ability. The small size of individual farms makes it difficult to adopt satisfactory sales policy. This situation has encouraged co-operative ac-

tion. It is true of agricultural co-operation that the failures have been more widely advertised than the successes. There are many outstanding instances of successful agricultural co-operation that receive little attention. The farmers' co-operative elevators have succeeded in improving the local marketing of grain. It is estimated that there are now more than 4,500 co-operative farmers' grain marketing associations in the United States. The co-operative livestock shipping association is another instance of the adoption of a successful sales policy by farmers. Estimates are to the effect that there are more than 4,500 livestock shipping associations in the United States. These co-operative movements are merely another evidence of the farmer's managerial ability in improving his business.

There is, of course, in farming, as in all other business, a wide variation of success. Some are failing completely, others are merely holding their own, but many others are making money. To quote from Dean F. D. Farrell, "Only a pessimist or a blind man will deny that the American farmer is rapidly becoming educated to his business."

III. THE FUTURE OF FARMERS AS MANAGERS

Farmers have made much progress through exercising their managerial ability but there is still abundant room for further improvement. In considering the possibilities of further improvements in agriculture, two basic considerations should not be forgotten: The farm is a business unit and as such is dependent upon governmental agencies for development and expansion.

Farming is an industry composed of a large number of individual enterprises. Each farm is a separate business unit managed by its operator.

Agriculture moves forward as each of these farm managers adds his improvements to the improvements effected by other farmers. The improvements that are really fundamental and lasting will be made by the individual farmer. The function of institutions disseminating information and otherwise working for the improvement of agriculture should be to provide the individual farmer with the best possible opportunities to become acquainted with, and to adopt, the latest proved improvements in production. Agriculture consists of a large number of business units with a man, a personality, back of each one. This man exercises his managerial ability to effect improvements.

The second basic consideration is that agriculture is dependent upon governmental agencies, such as agricultural experiment stations, to develop new methods and practices. The importance of research in agricultural production and marketing cannot be overemphasized. The individual farm is too small a business unit to permit the farmer to have his own research department.

As already stated, there still remains much for farmers to do in exercising managerial ability. Many farms are not organized on the most efficient basis. Simple records of the farm business will reveal ways in which this may be accomplished. The one-crop farmers of the wheat belt and of the cotton belt need more effective organization to the end that they may have more economical utilization of labor, better maintenance of soil fertility and greater dependability of income.

Furthermore, the credit utilized by many farmers is not of the best type. Often store credit is resorted to when it would be far more economical and businesslike to use bank credit. Too frequently farmers are utilizing their

credit to satisfy temporary or speculative needs. In many cases too little attention is given to long-time constructive programs, such as the development of a herd of livestock, or the adoption of a crop rotation. Much is yet to be done in adapting credit to the needs of the farmer, and the farmer has much to learn concerning the best utilization of credit.

NECESSARY FARM IMPROVEMENTS

Conservation of soil fertility, heretofore briefly mentioned, affords another opportunity for exercise of managerial ability on the part of the farmer. The fertility of the soil determines the extent of agricultural production. Many farmers are now conserving soil fertility through crop rotations, the use of manure and fertilizers, the keeping of livestock, and maintenance of the proper balance between the crops grown and the livestock kept on their farms. With the increase year by year in available information on soil fertility, these farmers will be able greatly to improve their present practices. Other farmers can make an effective start in this direction.

New varieties of crops are constantly being developed. There is still much to be done, however, in the development of crops that are resistant to disease and drought and that will give greater returns than those now in common use. The best cultural practices will be ascertained through careful investigative work.

Farms that lack livestock are losing opportunities of several kinds. As has been suggested, animals aid in conserving soil fertility. In addition, they convert unmarketable feeds into marketable forms. They employ farm labor at times when otherwise it would be idle. They reduce the cost of marketing farm crops. The Kansas State Board of Agriculture showed

this fact strikingly, when it found that the cost of shipping the feed necessary to produce a 1,000-pound steer from Hutchinson, Kansas, to Kansas City, Missouri, a distance of 225 miles, was \$27.18, whereas the cost of shipping a 1,000-pound steer the same distance was \$2.75. The cost of shipping the feed was approximately ten times the cost of shipping the steer. These characteristics of farm livestock result in increased farm income. Not only are there many farmers who could advantageously add more livestock in their farm business, but there is much that can be done in improving the quality and productiveness of livestock by better breeding feeding and management.

NEED AND VALUE OF CO-OPERATION

Better adjustment of production to demand for farm products is essential in improving the agricultural industry. Adjusting production to demand includes producing the products desired in the quantity and quality demanded.

By co-operation farmers in many instances can improve the farming in their communities by producing uniform kinds and qualities of products. Many a community is now beginning to keep one standard breed of chickens. This makes it possible to place uniform products on the market. Such co-operation might be well extended to other phases of farm production. Communities in which both hard and soft wheat are produced often find that their wheat is discounted at the market because of the mixture resulting from threshing both hard and soft wheat with the same machine. On the positive side, the experiences of California producers are often cited to show the advantages of uniformity of quality. California oranges now reach the market uniform in size and pack of dependable quality. The work of

standardization of agricultural products, however, is for the most part in the future.

It is characteristic of the farm business that it furnishes the farmer with much of his living. There are, however, many farms on which full advantage is not taken of this opportunity. Many farms lack dairy cows, and thus the farm table is without dairy products except as they are purchased. Other farms could grow fruit, vegetables and truck crops that would add materially to their living. This would enable these farms to be more self-sufficient and would also increase their incomes, since products used for the farmer's living are income even though they do not go into market channels.

Farmers have been slow to adjust production to demand. This is, in part at least, due to lack of adequate and specific information concerning the quantity and quality of products to produce. There yet remains much to be done in furnishing farmers with usable information concerning the adjustments that are desirable in their farm organization and operation. This will involve careful studies of the relation between agriculture and other industries and between the agriculture of this country and the agriculture of the rest of the world. In addition, farmers should be informed as to the demand for their products in foreign countries and as to the possibility of getting those products into the foreign market economically and satisfactorily. With this knowledge available the individual farmer can more intelligently adjust his production to the probable demand for his products.

Still another improvement in farming as a business will result from constructive co-operation. A chief need in this field is enlightenment. The farmer must be supplied with a better

knowledge of what constitutes desirable co-operative action. Such knowledge will protect him from the well-meaning but uninformed promoter who starts one co-operative scheme after another, hoping eventually to hit upon a scheme that will materially improve the marketing of farm products

The Farm Is a Home

In considering the future progress of the farmer as manager, the fact must not be overlooked that, generally speaking, the farm business is indissolubly linked with the farm home. Only rarely does one find an exception to this situation. The farmstead, which constitutes the plant, likewise comprises the home.

The average man, in any field of work, maintains his business primarily for the purpose of having a well-ordered and happy home. He will therefore do nothing in his business which might tend to prevent the accomplishment of this purpose. In lines in which the business and the home are not closely associated, the chance of this difficulty is slight. On the farm, however, quite the opposite is true. There are business practices which would improve the farm as a commercial enterprise but seriously impair its usefulness as a home. These practices the farmer will not and should not adopt. Not only should he maintain a home of high standards, but he also should keep in mind the fact that he is training future farm managers. For, in contrast to the condition in other industries, the vast majority of farm managers were brought up on a farm, and this will continue to be the case for a long time, if not permanently.

IV. SUMMARY

To summarize: Farming, although it may and should be regarded from several other standpoints, also must

be looked upon as a business if advantage is to be taken of the opportunities which the present day offers to it. Farmers themselves so regard it. Moreover, farming is not only a business, but a highly complex business, made so by the intermingling of determining forces, certain of which are controllable while others are not.

Thus it is essential that the farmer exercise managerial capacity. He has exercised this regularly in both the organization and the operation of his farm business. The agricultural achievements that have been made would have been impossible had not the farmer exhibited efficiency as a manager. There is still, however, much room for improvement in the exercise of managerial ability, and to

this we may look forward confidently. Progress will be determined largely through the individual farmer's adopting methods that have been proved successful in scientific research or in commercial practice. In every measure designed to aid or improve agriculture, the importance of individual initiative on the part of the farmer should be thoroughly recognized; what the farmer needs and wishes is primarily an opportunity to exercise his own abilities unhandicapped. Under no circumstances, however, must success in the farm business be permitted to interfere with the opportunity of maintaining a farm home of high standard. The farmer as manager and the farmer as head of the home are not two persons, but one.

The Services of American Agricultural Colleges

By A. C. TRUE

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WITHIN the last ten years the work of the agricultural colleges in the United States has been greatly broadened and strengthened. The organization of these institutions has also been more sharply defined so as to make the major lines of work distinct as (1) research (mainly through experiment stations), (2) resident graduate and undergraduate teaching, and (3) extension work. In all these lines the work has gone beyond that which relates to agricultural production and now includes a considerable range of subjects in rural economics and sociology.

The general character of these institutions as public agencies for the promotion of agriculture and country life has also undergone considerable modification. This is shown not only by the recent Federal and state legislation affecting them financially or otherwise, but also by the closer and wider relations which they have with the Federal government, state organizations, local communities and great numbers of individuals in all parts of the several states.

There are now in the 48 states and in Alaska, Hawaii and Porto Rico, 51 land-grant institutions for white students, including 25 state universities, in which there is a division or college of agriculture, and 17 institutions for negroes in the southern states. Agriculture is also taught in a number of private colleges.

The largest and most striking development of the work of these institutions has been in the extension field under the Smith-Lever Extension Act of May 8, 1914, and related Federal and state legislation. To this work in 1923

approximately \$19,149,450 was allotted. The Federal government contributed \$5,588,000 under the Smith-Lever Act, and by direct appropriation to the Department of Agriculture \$1,284,450 for farmers' co-operative demonstration work and \$30,000 for extension work by different bureaus, making a total Federal contribution of \$7,194,450. The remaining \$11,955,000 was derived from sources within the states, including \$5,324,000 of state and college funds, \$5,743,000 provided by the counties and \$880,000 from farm organizations and other sources, mostly local.

At present out of about 2,650 counties reporting considerable agricultural products, 2,088 have men extension agents and 852 have women agents. As county agricultural agents and assistants there are 2,174 white men and 162 negroes. The county home demonstration agents number 871 white women and 107 negro women. The county men and women agents do much work with children but there are also 134 paid county leaders for boys' and girls' clubs. The state directors and the state and district leaders of the main lines of work number about 440; there are about 900 extension specialists in the different branches of agriculture and home economics with headquarters at the colleges. In all there are in the states about 4,700 workers trained in agriculture or home economics.

FEDERAL-STATE EXTENSION WORK

In active co-operation with the state and county forces is the Extension Service of the U. S. Department of Agriculture, including the Office of

Co-operative Extension Work, the Office of Exhibits, the Motion Picture Laboratory and extension specialists in the different bureaus. The Federal extension workers go from state to state to aid in the various extension enterprises and make available within the states whatever information the Department has which may be useful in such work.

Each state has an extension director, who is the joint representative of the Agricultural College and the Federal Department. Under this officer all the extension work in agriculture and home economics within the state is organized and operated. Through the extension work the agricultural colleges are brought into close touch with practically all the rural communities and are constantly giving information and instruction to multitudes of the rural people.

The Smith-Lever Act is unique in its provision for close co-operation between the Federal government and the states in a nation-wide enterprise. Under the law all the plans for the co-operative extension work are made through mutual agreements between the state colleges and the Federal Department and the funds and workers of the two agencies are mingled in the extension enterprises. The same co-operative principle is by mutual consent of the interested parties carried down into the counties and local communities whose funds are used in the work. Thus the county agent often derives his financial support from several different sources and feels that he has back of him the Federal government, the state as represented by the agricultural college, the county and voluntary organizations of its citizens. The extraordinarily complex organization of this system of popular education for farming people has been carried on during the past ten years with remark-

ably little friction, is stronger today than ever before, and has produced results of great economic and social value.

There has been an increasing participation of the farming people themselves in planning and conducting the local extension enterprises. There are now about 35,000 rural communities which have committees or project leaders who join with the extension officers annually in planning and guiding the work. Many thousands of farm men and women participate in the demonstrations of improved practices conducted on their farms or in their homes. During 1922 there were 885,000 such demonstrations and it was estimated that 3,800,030 farmers or members of their families adopted new or improved methods of farming and home making as the result of the extension work.

At first the work dealt almost entirely with the problems of agricultural production. One of the outstanding efforts of the extension forces was the stimulation of agricultural production and food conservation in the United States during the World War. Since that time the emphasis has been shifted to the economic problems of agriculture. Now the extension agents give a large share of their time to matters relating to farm management, farm accounts, cost of production records, standardizing and preparation for market of agricultural products, their marketing and the formation and management of co-operative organizations for buying and selling. In 1922 about 940,000 farmers or members of their families joined marketing organizations or were aided in the disposition of their crops or the purchase of supplies by the extension service, and this resulted in a total business of over \$260,000,000.

In a large way the extension forces

have promoted the recent mass movements of farmers seeking to improve their economic and social conditions. The farm bureaus now active in many counties had their origin in the necessity of having groups of farm people to support the work of the extension agents. Out of this grew the state and the American federations of farm bureaus. Thus was created a nationwide farm organization with hundreds of thousands of members, which is promoting a broad program of co-operative efforts in the interests of agriculture and country life. This movement aroused other farm organizations to renewed activity. A notable example of this is the Grange, which has had a remarkable revival in many parts of the country in recent years. The great organizations for marketing cotton, tobacco, grain, etc., owe much to the extension service and its supporting institutions with which they are in close touch and from which they derive much helpful information.

The farm women have had greater recognition and help from the extension service than from any other agency. In the counties and at the agricultural colleges are more than a thousand women trained in home economics who are devoting themselves to the interests of farm homes. Their work deals not only with food, diet, clothing, household equipment and management, but also with child care, health, family budgets and expenditures, recreation and social activities.

A great work for farm children has also been built up. Half a million boys and girls are annually enrolled in the extension clubs, which through their farm and home projects, prize contests, tours of observation, camps and conferences at the agricultural colleges are promoting more and better education for farm children and training them for future leadership in rural affairs.

INSTRUCTIONAL WORK

The agricultural colleges have made notable advancement in dealing with the problems of agricultural instruction in the secondary schools since the passage of the Smith-Hughes Vocational Education Act in 1917. Under this Act considerable sums of Federal and state funds are devoted in all the states to the training of teachers of agriculture. The agricultural colleges have been assigned the duty of training these teachers, though the Act does not specifically require them to do so. All the land-grant colleges have departments offering courses in general psychology, educational psychology, methods of teaching and other professional subjects and many of them have departments or courses of agricultural education. The Federal funds for vocational instruction in agriculture in secondary schools increased from \$547,027 in 1918 to \$1,759,219 in 1923 and have been more than offset by state and local funds. The Federal fund will reach its maximum in 1926, when it will aggregate \$3,021,987. In 1918 vocational agriculture was taught in 609 schools by 895 teachers to 15,453 pupils and in 1923 in 2,673 schools by 3,012 teachers to 71,298 pupils. There are 170 special agricultural schools in the United States, and there is a place for this limited number of such schools. But experience has shown that in general it is more advantageous to have the local high schools carry on the work in agriculture under the Smith-Hughes Act. The pupils, who for the most part are between 14 and 18 years of age, can then live at home and as a rule carry on the required practice work on the home farm. This also makes the school a factor in improving the agriculture of the local community.

The assumption of the duty of training teachers for the secondary schools

has affected the agricultural colleges favorably in several ways. It has greatly broadened the interest of the college authorities and teachers in the problems of agricultural education and the application of pedagogical principles to the teaching of agriculture. It has opened a new vocational outlet for a considerable number of graduates from the agricultural courses of these colleges. It has given these colleges more prominence in the thought of the pupils in many high schools and brought a considerable number of them to the colleges for long or short courses. It has fundamentally affected the relation of these colleges to the public school system of the several states and made them more fully an essential part of this system. Since the United States has only begun to develop a comprehensive system of vocational education, we may expect that with the accelerated progress which such education will make the colleges standing at the head of the agricultural division of this system will have an increasingly important part to play in its development and maintenance.

Resident teaching in the agricultural colleges has been greatly strengthened and diversified in recent years. About \$10,000,000 is now annually spent for agricultural instruction in the land-grant colleges.

In 1921 the number of instructors in agriculture in the white colleges was 2,032 men and 96 women. The total number of students of agriculture was 32,186 men and 3,183 women, of whom 751 men and 71 women were in graduate courses; 14,726 men and 487 women in four-year undergraduate courses; and 14,997 men and 1,996 women in subcollegiate work, including short courses, summer schools and correspondence courses. In the land-grant institutions for negroes there were only 847 students in agricultural courses.

The lack of secondary schools for negroes has largely prevented these institutions from doing college work and the relatively few openings for negroes trained in agriculture has turned the attention of their students to other vocations. Many more students in these institutions receive training in carpentry, tailoring, brick-laying and other trades in which skilled workers receive good wages.

In 1922 the bachelor's degree was given to 2,239 students in agricultural courses in the land-grant colleges. The economic depression of agriculture has temporarily reduced the number of students attending the agricultural courses at the colleges, as was also the case under similar conditions in former years.

The courses in the various branches of agriculture have in general become more highly specialized and technical. Emphasis is now being strongly placed on courses in rural engineering, rural economics and sociology. Special attention is being paid to better organization of the curriculum, the adoption of a group system of exercises, provisions to meet the need of individual students according to their interests and capabilities, promotion of better teaching and recognition of the importance of expert supervision of the educational work as a whole by the appointment of directors of resident teaching or similar officers. Recently there has been much interest in problems relating to the professional training of teachers of agriculture and other vocational subjects in the land-grant colleges and their association has recommended that beginning with 1925 candidates for teaching positions in these colleges be required to have had pedagogical training.

Graduate courses for investigators, teachers and experts in agricultural specialties have increased, particularly

in the stronger colleges or universities where agriculture and related subjects are taught.

In 1922, 265 students at 32 institutions received the master's degree for work in agriculture, including 44 at the Iowa State College, 39 at the University of Wisconsin, 25 at the University of Minnesota, 23 at Cornell University, and 22 at the University of California. For similar work 42 students received the doctor's degree at 8 institutions, including 16 at the University of Minnesota and 13 at the University of Wisconsin.

The public generally does not yet understand the breadth of the instructional work of the agricultural colleges and the great variety of the openings for useful service which lie before the graduates of these institutions. A considerable number of these graduates engage in general farming. Scattered throughout the states such men are often leaders of agricultural progress in their several communities. Others pursue agricultural specialties, such as breeding of improved seeds or types of livestock, orcharding, forestry, greenhouse culture of vegetables, flowers, etc. Many become administrative officers or teachers in colleges and schools, or investigators in experiment stations or the U. S. Department of Agriculture. Others hold administrative offices in Federal and state departments of agriculture or other public services. The late Secretary Wallace was a graduate in agriculture at the Iowa State College.

There are now many lines of business in which such graduates are employed. Social workers and even missionaries are being trained in our agricultural colleges. One such institution has recently made a list of more than a hundred occupations open to its graduates.

WORK OF EXPERIMENT STATIONS

The research work of the agricultural college is usually organized as an experiment station. These stations have an annual income of about \$9,500,000, including \$1,440,000 from the Federal government under the Hatch and Adams Acts. They employ over 2,000 trained workers, about half of whom do more or less teaching in the colleges. They issue annually about 1,000 publications freely distributed to nearly a million addresses. The contents of these publications are generally summarized in the agricultural press and form the basis of much of the extension work of the colleges. Many of them find their way abroad. Summaries of all of them are regularly published in the *Experiment Station Record*, and sent to libraries and agricultural institutions throughout the world.

In 1922-23 the total number of projects carried on by the experiment stations was 5,156. These dealt with a great variety of problems relating to soils, field crops, horticulture, animal husbandry, plant and animal diseases, beneficial and injurious insects, noxious animals, dairying, rural engineering, farm buildings, water supply, sanitation, foods and human nutrition, etc.

There were also 186 projects in the field of rural economics and sociology. These included studies of cost of production of staple crops, vegetables, fruits, livestock, milk, butter, etc.; farm accounts; labor; farm organization and management; co-operative organizations; land settlement and tenure; land values; marketing; rural credits; relation of industrial conditions to agricultural conditions; labor income of farmers; living costs of farm families; economic and social problems on Texas ranches; rural social surveys;

organization and curriculum of rural schools; rural primary groups; towns and villages as social and economic service stations, etc.

Increased expense of research and inadequate increase of funds in recent years have prevented the experiment stations from entering more broadly and strongly into the economic and social field. There is now pending in Congress a measure known as the Purnell Bill, the passage of which would so far increase the Federal contribution to the support of the stations that they would be able to do much more in economic and social research as related to agriculture and country life.

The experiment stations in about one third of the states, principally in the East, have more or less regulatory work. This largely deals with the analytical or other scientific work involved in the control of fertilizers, feeds, foods, seeds, dairy products, plant and animal diseases or pests. In recent years there has been a relative decrease in the extent and importance of the station participation in such work. The agricultural colleges, through their association, have supported the policy under which state departments of agriculture are being developed and strengthened as public agencies for the administration of state laws relating to agriculture. The U. S. Department of Agriculture has also favored co-operation with the state departments in such matters.

INFLUENCE OF AGRICULTURAL COLLEGES

The agricultural colleges, through their research, teaching and extension

work have attained a broad leadership in agricultural progress and their influence is increasingly felt in all parts of the United States. They have in large measure made successful farming an occupation requiring not only skill, thrift and good business ability, but also a knowledge of scientific principles and their direct and proved applications to farm operations. The value of such knowledge has been more broadly demonstrated than ever before during the recent economic depression of agriculture due to worldwide causes over which individuals had no control. In this difficult situation there have been many farmers whose knowledge of improved practices, gained directly or indirectly from our agricultural colleges, has enabled them to weather the storm and keep their business going with a measure of success unattainable by their more ignorant neighbors. This is why the farming people have held on to the extension forces of the agricultural colleges and have led the legislatures in many states to increase the personnel and equipment of these institutions for resident teaching and experimental work. Particularly have the farmers asked the colleges to strengthen their teaching and research on subjects within the field of rural economics. Appreciating the great benefits that have come to agriculture from the work of these institutions relating to agricultural production, the farming people are hopeful that when they are strongly engaged in economic work they will be able to do much toward giving agriculture a sounder and more stable economic basis.

Crop Insurance—Its Recent Accomplishments and Its Possibilities

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ON September 9, 1922, the United States Senate passed a resolution creating a select committee of three from their number, "to investigate the subject of crop insurance." This committee was directed through the resolution to approach the subject "particularly with reference to:

- (1) The kinds and costs of insurance now obtainable;
- (2) The adequacy of the protection afforded by such insurance;
- (3) The desirability of any practical methods for extending the scope of such insurance;
- (4) The availability and sufficiency of statistics necessary to properly and safely issue additional crop insurance."

In pursuance of this resolution the committee held hearings from April 24 to April 27, 1923, at which time experts from insurance, farming and governmental interests testified. The experience thus brought together was very valuable, this being the first time that the question of insuring growing crops had been approached as a national problem. The testimony of insurance experts and others brought out especially the fact that, to be successful, crop insurance, covering our major crops, must be based upon much more detailed data than we now have and must be nation-wide in scope. The committee adjourned to reconvene in

the fall of 1923, at which time the economic condition of the farmer had become more acute. The attention of Congress, and in particular that group especially interested in the problems of our farmers, was then directed to measures of more immediate relief. The first six months of 1924 passed, including the adjournment of Congress, without any additional hearings or investigation. Then, as so often happens in the business of farming, climatic conditions changed—this time to the benefit of the American farmer. Reports have come in of a Canadian wheat crop of 200,000,000 bushels under that of last year, the United States cotton crop promises to reach 12,500,000 bales with a relatively high price, a strong export demand for grain has developed, and, together with other factors, the best year for the farmer since 1919 has resulted. This has temporarily relieved the agricultural situation, making it possible to again resume consideration of proposals designed to be of permanent benefit to agriculture. It is not out of place at this time, therefore, to bring together the events of recent years in the field of crop insurance, the problems and difficulties involved, and the success or failure attending—to consider a proposal which promises to be an improvement with both permanent and far-reaching results.

I. MR. FARMER—THE PREMIER SPECULATOR

The thought is not a new one that the American farmer as an enterpriser is subject to unusual risks entirely beyond his control. He may invest in a Florida orange grove only to find that

frost may prematurely ruin his crop; in the cotton belt the boll weevil must be reckoned with; in the central west a tornado or lightning may destroy his buildings; in western Kansas his crops

are liable to drought and pests; along river lowlands the land is subject to overflow; in many states hail is not of infrequent occurrence; and in every locality the product which he is preparing for market may have declined in price by the time it is fully produced. There are several kinds of agricultural insurance now available for the farmer, framed for the purpose of minimizing some of these risks. Thus in 1915 there were nearly 2,000 farmers' mutual fire insurance companies in the United States with a total amount of insurance in force of five and a quarter billion dollars, which was over two-fifths of the total value of all farm property in the United States at that time.¹ Hail insurance reached the high figure of \$560,000,000 written in 1919,² covering crops mostly in the north central group of states. Tornado insurance is often written as a rider in the fire policy, and is available to the farmer who feels the need of this type of protection. Livestock insurance is offered to a limited extent, covering loss of livestock due to disease or accidental death. A lightning clause in his fire policy will protect the farmer against loss from that source. The farmer may, of course, insure his family against his death or disability.

There is also, besides hail insurance which was mentioned above, a very limited amount of other kinds of insur-

ance covering the farmer's growing crops.

Such an extended list of insurance would seem to be adequate in covering the hazards of farming. Yet this is not the case. The most important risk of the farmer has for its cause the uncertainties of weather and market conditions as they affect his growing crops and has as its measure the relation which the annual gross income derived from his crop bears to his annual costs. These annual costs³ take the form of the farmer's own labor and that of his family, wages paid for hired help, depreciation of farm equipment, rental or interest charge, seed, fertilizer and other expenses. He runs the risk that his crop will not emerge in the fall of the year worth in value an amount at least equal to the aggregate of these annual costs. Many farmers run a far greater risk, i.e., that their crops will not be worth enough to allow them to remain in the farming business.

This major risk of farming may be stated in another way. Suppose the yearly costs, and the corresponding annual gross income of farmer A for a series of years are as shown in table on the following page.

Column VI shows the ratio each year that the farmer's returns bear to his yearly costs. When this ratio is above 1.00 there is a net profit for the year. When it is below 1.00 there is a

¹ Year Book, U. S. Department of Agriculture, 1916, Article by V. N. Valgren on *Farmers' Mutual Fire Insurance*.

² Estimate of Hon. H. C. Wallace, Late Secretary of Agriculture, in "Hearings before a Select Committee on Investigation of Crop Insurance," U. S. Senate, p. 2.

³ I am using the term costs to include both the monetary expenses of the farmer and those items of outlay which are the result of the farmer's own work and oftentimes that of his family. These latter costs cannot accurately be expressed in terms of money. Yet they always figure in a farmer's estimate of whether his operations are profitable or not. One of the first principles of business, including that of farming, is, that over a series of years the income from the business must average greater than the costs, or effort will be directed along other lines of work. Studies of farm costs and farm income have often been made showing that the farmer is losing money every year. Such a conclusion is often in error, because too high an estimate has been placed on the farmer's own work or that of his family. The point of view has been: What *should* a farmer of his class be worth, rather than what is the least he will accept. The latter figure is the one which determines whether his income is less than his costs, and whether he will continue to farm or not.

I	II Costs	III Gross Income	IV Loss	V Gain	VI Ratio: $\frac{\text{Gross income}}{\text{Costs}}$
1900.....	\$1,800	\$1,700	-\$100		.94
1901.....	1,700	1,780		+\$80	1.05
1902.....	1,700	2,300		+500	1.35
1903.....	2,000	1,200	-800		.60
1904.....	1,600	1,600	00	00	1.00
1905.....	1,500	2,000		+500	1.33
1906.....	1,800	2,100		+300	1.17
1907.....	2,000	2,700		+700	1.35
1908.....	2,300	2,100	-200		.91
1909.....	2,000	2,100		+100	1.05
	\$18,400	\$19,580	-\$1,100	+\$2,280	

net loss. The risk of farming arises out of the fact that this ratio is not a constant from year to year but a highly fluctuating variable. Over a series of years this fraction must average at least 1.00 or the farmer will not remain in business; for any given year this fraction may be very large or very small. The greater the fluctuation from year to year, the greater the risk and the greater the need for insurance.

There are three main elements entering into this major risk of farming. The first of these is weather. This may be broken up into several parts, which will be analyzed presently in greater detail. It will be sufficient here merely to enumerate the groups to show their effect on the ratio of gross income to costs. Thus, of first importance is the amount of rainfall each year, especially in the critical period of growth, which, of course, varies for different crops. Then follow the elements of hot winds, destruction by storms, hail, frost, floods, freezing and other minor causes. These elements cause

wide variations in the quantity and quality of products grown yearly, and are hazards of great importance to every farmer.

The second main element might be called plant and animal disease, and includes damage done by insects, by small animal pests and plant diseases. In so far as these risks can be controlled they cease to be an important element. When they get beyond control a large portion of a crop may be destroyed.

The third main element entering into this major risk is that of price. In the ratio given above, the numerator, or the amount representing the value of the farmer's annual production, is the product of the quantity produced, times the price per unit. Likewise the denominator—the farmer's annual costs—is made up in part, at least, of products and services times their price per unit. The prices of these products vary continually, and the extent of their variation, together with the farmer's ability to forecast their direction, measures the importance of the risk.⁴

It may be urged that the work of the farmer himself is a factor causing variations in the ratio of gross income to costs which, if true, would mean that crop insurance is a proposal to guarantee to a farmer a profit every year. This, however, is not the case. A skilled farmer may study trends in farm prices and farm production, the character of the demand for his products, preparing a suitable quality of goods for market; he may study his business from the point of view of costs, properly balancing the elements entering into the total cost of his products, and by superior methods consistently

THE MAJOR RISK OF FARMING

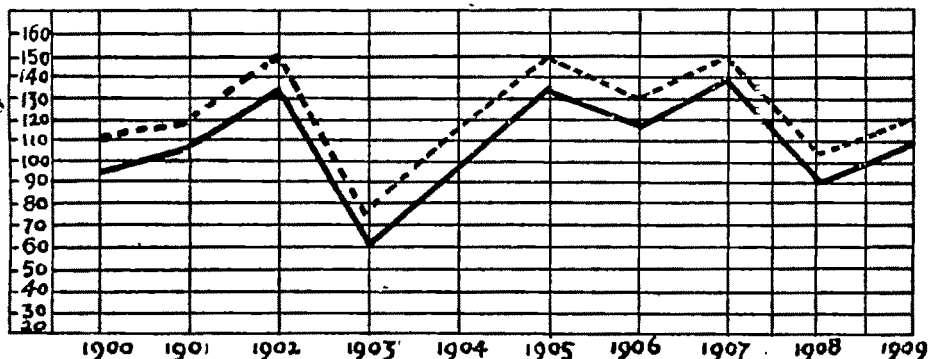
The uncertainty of profit or loss represented by the ratio	Total value of crops	Market price of crops	×	Amount of crops as determined by:	Weather:	Plant and Animal Disease:
	Costs	Price of labor, seed, etc.	×	Amount of labor, seed, etc.		

Drought
 Hot winds
 Excess moisture
 Storms
 Hail
 Frost
 Floods
 Freezing
 Miscellaneous

Scab
 Smut
 Rust
 Weevil
 Beetles
 Grubbers
 Etc.

The risk involved, therefore, in growing crops divides itself into three main groups: weather; plant and animal diseases; and price variations. By the payment of a premium this risk may be shifted, in whole or in part, from the

have a ratio at the end of each year showing a net profit. This quality might be called his managerial ability. Or he may have a net profit each year by simply working harder than the average farmer. Obviously the opposite of this may also be true: that through a lack of managerial ability or a lack of effort a farmer may have a loss ratio, and, if continued, will ultimately be forced out of the business. But whether he is a superior or an inferior farmer, his ability neither increases nor decreases the variations in the ratio of annual return to investment. If he is above the average as a farmer, the ratio of fluctuations will from year to year range higher than the average farmer. Thus, from the illustration above the ratio: $\frac{\text{Gross Income}}{\text{Costs}}$, when plotted for the series of years given, would be as shown by the solid line in the accompanying chart.



If this is considered the experience of an average farmer, then one with unusual ability would, while having as great a degree of fluctuations from year to year, consistently range higher than the ratio of the average farmer (dashed line). He is subject to the same climatic conditions and price variations.

It might also be thought that differences in the fertility of the soil from one locality to another might enter as a factor causing fluctuations in the ratio $\frac{\text{Gross Income}}{\text{Costs}}$ but a moment's reflection will show that the case is the same as that shown in the above chart.

shoulders of individuals to those of the group. This is the purpose of insurance on growing crops.

To date the experience in the United States in insuring growing crops is the result of two main avenues of approach. First, separate risks have been insured against, such as hail or frost; and second, a blanket crop policy covering a group or all of the risks enumerated above has, in several cases, been issued.

Working along the lines of the first method, hail insurance, through continuous adjustment and improvement during the past 40 years, has been worked out to a practical basis; within the last few years, frost insurance has become a practical line in Florida and California among the citrus fruit growers; of more recent development is rain insurance which, while not yet on a practical basis, is designed to insure the

raisin makers of California, covering loss while the grapes are being dried on trays.

A number of attempts have been made to issue a broad crop coverage some of which have met with success and some of which have not. In the following two sections the leading experiments which have been made in the United States will be reviewed, including a résumé of the more recent accomplishments in special lines of crop insurance.

That the field is a large one is shown by the following data from the U. S. Department of Agriculture Year Book, 1923, showing the insurable value of the crops for that year. For all crops the value was over eight billion dollars, and for the three important crops of corn, cotton and wheat, the value was a little over four billion dollars.

CROP SUMMARY,* 1923

Crop	Acreage	Production per Acre	Total Production	Total Value
Corn	104,158,000	29.3 bu.	3,054,395,000 bu.	\$2,222,013,000
Wheat	58,308,000	13.5 bu.	785,741,000 bu.	725,501,000
Cotton	37,420,000	128.8 lbs.	10,081,000 bales	1,563,347,000
All Farm Crops† . .	350,698,100			8,322,695,000

II. OUR EXPERIMENTS TO DATE IN CROP INSURANCE COVERING GRAIN

In Section I the chief hazard to the farmer was outlined and broken up into three main elements: weather; plant and animal disease; and price. These three main elements were in turn sub-divided into more detailed factors. Before presenting the specific attempts in the field of crop insurance which have been undertaken, we venture to carry the analysis of Section I a step further. The reason for this is that in the vari-

ous crop coverages placed in recent years, in some of the cases at least, it was not always quite clear what hazards were actually being covered. Knowing the range of diverse risks in the field should be of assistance, therefore, in appraising a proposal to insure one or more of them

The point was made in Section I that all of the hazards involved in growing crops converge into an annual

*U. S. Department of Agriculture Year Book, 1923.

†Including oats, barley, rye, hay, buckwheat, tobacco, flaxseed, rice, potatoes, fruits, berries, vegetables, etc.

favorable or unfavorable ratio of gross income to costs. In this ratio both the elements of income and of costs are, throughout each season and from year to year, variables. So far there has never been an attempt on the part of an insurance company to insure the farmer against what would need to be rising farm costs. In the insurance experiments which have been based on costs, in each case the cost of each farm operation was established in advance, which changes the denominator from a variable into a constant.⁵ Nor does it seem at all feasible to insure against changing farm costs. Farm costs, when one includes the items of the farmer's own labor and that of his family, are relatively much more constant⁶ from month to month than is the item of gross income composed of the product of yield and price. Carrying the problem a step further, therefore, the major risk to be covered by insurance is represented by the fraction whose numerator is a variable income and whose denominator is a fixed group of costs.

The earliest experiment in the United States in crop insurance which the writer has found was in 1899, by a corporation located in Minneapolis, Minn.⁷ This company, known as the Realty Revenue Guaranty Company, issued in the spring of 1899 a policy, upon application by a farmer, known as an *Optional-sale Contract*. The application for this contract read in part as follows:

REALTY REVENUE GUARANTY COMPANY
of Minneapolis, Minn.
Capital Stock, \$100,000.00

I, ..., of P. O.,
County of, State of,
do hereby apply to the R. R. G. Company

for an optional-sale contract of \$. per acre which is hereby referred to and made a part hereof, subject to all conditions therein contained upon all crops raised on the following described lands:

Upon this application the company issued its contract which, in addition to the provisions in the application, contained the following important points:

1. The company agreed, if the insured desired, to purchase the entire crop insured at \$5 per acre, the insured to elect to exercise the option not later than five days after threshing.

2. A premium of 25 cents per acre or 5 per cent was charged for a \$5 optional limit.

3. The farmer agreed to cultivate his crops in a husbandlike manner.

4. The farmer agreed to deliver his crop to the nearest market, if requested to do so by the company upon exercising his option.

5. The company disclaimed liability due to damage done after September 15th or after crops were harvested.

How this early enterprise in crop insurance fared is not known. If subsequent experience is of any value, however, it must not have fared very well, as the premium was entirely too low. Wheat in the fall of 1899 was selling in Chicago at about 72 cents per bushel, which at \$5 an acre would have made it profitable for a farmer to exercise his option were his crop less than seven bushels to the acre. Below a fixed limit in the contract, the company assumed loss from any or all of the sources to which the crop is exposed. It is therefore a case of a guaranty that the ratio $\left\{ \frac{\text{variable gross income}}{\text{fixed costs}} \right\}$ would

be at least 1 for the season. What the return on the crop would be would depend on the price of the grain, the con-

⁵ An exception is found, however, in the case of crop insurance on fruit; see Section III, policy of the Georgia Peach Growers' Exchange.

⁶ *i.e.*, farm costs per acre—not farm costs per bushel.

⁷ The facts concerning this company described were brought out in a court case involving an agent of the company. See *State of North Dakota v. Hogan*, 8 North Dakota, 301.

dition of the weather, and the extent of the damage done by insect and animal pests and plant diseases.

It was not until 1917 that additional attempts were made to issue a blanket policy on growing crops. During this year two attempts were made to issue a broad policy. One of these contracts was issued by a company located in Montana. This company proposed to insure the farmer

against loss, damage or failure from hail or any cause excepting fire, floods, or failure to properly prepare the ground for seeding and properly seed, care for, harvest, protect and thresh said crop.

The policy states the number of acres insured and, to an amount of \$7 per acre, insurance to cover all of the small grain which the farmer has in cultivation. This was to prevent the farmer from insuring only the poorer parts of his farm. In case of total loss, the company agreed to pay the insured \$7 per acre for his crop. In the case of a partial loss of a crop, the liability of the company was to be computed by first determining the value of the remaining crop by multiplying the number of bushels harvested by the following values for each kind of grain: wheat, \$1.00 per bushel; flax, \$1.75 per bushel; rye, 70 cents per bushel; oats, barley and speltz, 50 cents per bushel. The resulting sum was then to be subtracted from the amount insured, and the difference was the company's liability. Thus: Farmer A has 100 acres of wheat

which he insures at \$7 per acre, making the amount of the insurance \$700. On September 10th he threshes this crop and has 400 bushels, which amount, valued at \$1 per bushel, equals \$400. The company's liability is then \$300. The other provisions of the contract on negligence, notice of loss, fraud, misrepresentation, warranty, insurable interest, and assignment were not unusual.

Which of the various elements of crop hazard did the company attempt to insure in this contract? In one respect it is very similar to the optional-sale contract described above, in that the cost feature of the farmer's risk was a constant—the amount of insurance per acre, \$7. The fact that the value of the crops was to be determined by fixed figures stated in the contract eliminates the variable element of price. The only other element left, therefore, was the amount of product, and this the company insured, in the case of wheat, at 7 bushels per acre; flax, 4 bushels per acre; rye, 10 bushels; oats, barley and speltz, 14 bushels per acre. The risks the company were exposed to included those of drought, hail, insect and animal pests, plant diseases, winterkill, hot winds, storms and other minor influences, but excluding fire, floods or the farmer's own negligence.⁸

The enterprise proved a disastrous one indeed, the liabilities of the company exceeding its assets by almost \$200,000 at the close of the season's operations.⁹ In correspondence with

⁸ In the form of a ratio the company's risk was that the fraction
$$\frac{\text{variable amount of grain} \times \text{fixed price } (\$1 \text{ for wheat})}{\text{fixed costs}}$$
 would be less than 1.

As in the case of hail insurance, the effect of this kind of coverage to the farmer is: (1) that he becomes a co-insurer with the company when the market price of the grain is above the price as stated in the contract, and is insured only against a part of the direct loss due to damage by weather or plant and animal diseases; (2) when the market price and the contract price are the same, he is insured against all direct loss due to weather and plant and animal diseases; (3) when the market price is below the contract price, he is insured against all direct loss due to weather and plant and animal diseases, and a sum in addition which may be used to cover part of his loss due to the decline in market price. The following table illustrates these three circumstances:

an official of the company, the following causes of the failure were pointed out by him as the most important:

1. Poor management by the officials of the company itself.

2. The company, having a capital stock of only \$50,000, was too small for an undertaking of this kind, which should have its risks spread over a wide area.

3. Insurance was written too late in the season, with an apparent failure of the crop in sight.

The year 1917 was a year of unusual drought, which was the occasion (though not the basic cause) of the company's failure.

Another crop insurance undertaking in 1917 was by a Pennsylvania company. The policy issued by this company was practically identical to that of the Bankers' Insurance Company, the same risks being covered with a \$7 per acre limit, and the same fixed prices for the cereals insured. They charged a premium of 70 cents an acre on \$7 of insurance, or 10 per cent, and wrote most of their insurance in North Dakota.

The outcome of the season's operations was a heavy loss, though it did not result in the company's failure. Realizing that they were going to lose heavily, the company attempted, and

succeeded in many cases, to settle their losses by a return of the premium. Later it developed that the company was able to pay their losses in full, and a great number of actions were brought against the company by farmers, and several of the cases reached the North Dakota Supreme Court. In these cases there is brought out one point of particular importance: that the company wrote the bulk of the insurance at a time when crop failure seemed highly probable. Thus in one case, which reached the State Supreme Court and was decided in favor of the insured, application was received on July 12th; in another case, June 28th, and in another on June 22nd. In correspondence with a law firm which handled a large number of the cases which were brought into court, the firm emphasized the poor method of handling this insurance by the company:

The local agents for the insurance company were officers of the different local banks throughout the territory. Almost all of the farmers were indebted to these banks with the idea that the debt would be paid from the proceeds of the coming crop. Just as soon, therefore, as it became certain that drought was going to ruin the crop, the banks were faced with a situation out of which there would be no money coming to them. Immediately there was a

INSURANCE—7 Bushels per Acre at \$1 per Bu. = \$7.00

Damage to the extent that only 6 bushels per acre are harvested

Bushels harvested	Price per bushel	Loss in grain value, 1 bu. × price	Insurance received	Amt. available to meet loss due to decline in price	Percentage of loss in grain value sustained by	
					Farmer	Insurance Co.
6	\$2.00	\$2 00	\$1.00	0	50%	50%
6.	1.50	1.50	1.00	0	33⅓%	66⅔%
6.	1.00	1.00	1.00	0	0	100%
6.	.75	.75	1.00	25¢	0	100%
6.	.50	.50	1.00	50¢	0	100%

* Annual Report of the Insurance Department of Montana, 1917,

flood of applications for insurance, and the insurance was gladly written by the bank.

Had the insurance been written two months earlier, with a wider spread, including several states, the results would certainly not have been so disastrous.¹⁰

Probably the most extensive attempt to successfully underwrite the hazards involved in growing crops is the one begun in 1920 by the Hartford Fire Insurance Company. To date this company has made a practical test of two distinct types of broad crop coverage, neither of which were successful. They are, in addition, at the present time placing a limited amount of crop insurance on certain kinds of fruits and vegetables.

Their first crop policy, issued in the spring of 1920, was an attempt to insure to the farmer his costs of production.

To accomplish this there was included on the application a list of the operations and materials used in raising crops, which list the applicant filled out, indicating the expense per acre for each operation. This list included plowing, discing, harrowing, rolling, seeding, seed, harvesting, twine, shocking, stacking, threshing and rental value. A conservative figure of this total per acre was then taken, multiplied by the number of acres, and the resulting sum was the amount of insurance. On the average the company charged 6 per cent premium.¹¹

The company then insured the farmer against loss or damage to the growing crops

when caused by the elements, including frost, winterkill, flood, drought, insects or disease, but excluding loss or damage when

¹⁰ A mutual company also wrote a small amount of crop insurance in South Dakota in 1917, but met with very little success and did not attempt to write any the following year. Another minor experiment was made in Worcester County, Mass., this same year, but their experience is of little practical importance.

In 1919 there was organized in northern Missouri a so-called crop insurance company, but in reality the policy covered damage done only by storms. Being mutual in form, the applicant for insurance became automatically a member with a membership fee of one-half of one per cent of the amount of insurance taken, the minimum fee being \$5. They were, in addition, subject to a maximum assessment of 8 per cent due on or before September 1st of each year. In 1919 they levied the maximum 8 per cent. According to the records of the Insurance Department of the state of Missouri, the company lasted only a few months, when their affairs became so involved it was necessary to place them in the hands of a receiver.

They proposed to insure the farmer against loss or damage to growing crops by hail and destructive storms, the policy contract expressly stipulating that "hail and destructive storms" mean "hail, cyclone, wind storms, and destructive rain storms when accompanied by either hail or wind, but in no event is this company to become liable for any damage done to growing crops which is caused by hot winds, drought, insects, overflow or freezing." The measure of the company's liability in case of total loss of crop was to be the value of the crop destroyed, but not more than the amount of insurance taken out; in case of partial loss the company agreed to pay "such percentage of the insurance carried . . . as is equal to the percentage of loss of crops thereon, not to exceed the net loss sustained." This type of provision regarding loss resembles the usual hail clause with the exception that the company's liability must not exceed the value of the crop destroyed. The following two ratios show the extent of the company's liability under the two conditions:

- (1) When value of crop is greater than amount of insurance:

$$\frac{\text{damage due to storms} \times \text{amount of insurance}}{\text{undamaged crop}}$$

- (2) When value of crop is less than amount of insurance:

$$\frac{\text{damage due to storms} \times \text{value of undamaged crop}}{\text{undamaged crop}}$$

¹¹ Testimony of Mr. R. M. Bissell, president of the Hartford Fire Insurance Company, before the Senate Committee investigating Crop Insurance, April 24-27, 1923.

caused by fire, hail, wind or tornado, or failure of the seed to germinate, or failure of insured to properly prepare the ground for seeding, or to properly seed, cultivate and harvest said crops.

While this very specific clause stating the company's liability is clear, it does not adequately show the extent of the risk assumed.

What hazards of the major risk of farming were insured in this "acreage investment" policy? The assumption by the Insurance Company of the risk of the farmer's costs rising in amount was definitely eliminated, since the investment figure was estimated and fixed in advance. If costs subsequently rose or fell, the farmer and not the insurance company lost or gained thereby. Of the elements affecting the amount of the crops, all of the major hazards were assumed by the insurance company with the exception of hail. This included drought, plant diseases, insect and animal pests, and frost. Finally the very important hazard of a fluctuating market price for the crop was assumed by the company.

Expressed in ratio form the company assumed the risk that the fraction $\frac{\text{amount of product} \times \text{price}}{\text{fixed costs}}$ would be

less than 1 at the end of the crop season. Substituting figures in the ratio: if the costs figure for Farmer A proved to be \$14 per acre, then for a 100 acre field insured the amount of insurance would be \$1,400, which would be the fixed costs figure. At the time insurance was taken out with a good crop in sight, the estimated amount of the crop might be assumed to be 20 bushels per acre, or 2,000 bushels, and the estimated fall price of the grain \$1.50 per bushel. The insurance company would then start with a crop prospect of

\$3,000, which would have to decline over 50 per cent before it would be called upon to pay under their contract. But while equities may look large in the spring, they may be quickly wiped out as the season advances. Thus, in the above illustration a 50 per cent crop with a 50-cent drop in price would result in a \$400 liability, and with a premium payment of 6 per cent, or \$84.00, a loss ratio of 475 per cent.

Two other provisions in the contract should be mentioned. The first pertains to the method of determining the market value of the crop in the fall. Quoting:

It is also a condition of this policy that, unless otherwise provided by special agreement attached hereto, such actual market value shall be determined by the prevailing prices at the nearest recognized market for crop of like kind and quality at the time of harvesting, but not later than the 15th day of November following the date of this policy.

The second provision was in substance that in case of total crop loss the company's liability would cover only the amount expended by the insured in seeding and cultivating such crop up to the date of the total loss and therefore would not include items of harvesting, twine, shocking, stacking and threshing, and only a part of the item of rental value.

In testimony¹² given by the President of the Hartford Fire Insurance Company, this experiment in 1920 cost the company in round figures \$1,700,000. The company assumed a total liability of \$14,000,000, distributed with \$5,000,000 on the Pacific Coast, \$4,000,000 in the South, \$4,000,000 in the central belt, and a small amount in the eastern states. They received in premiums \$800,000, and sustained losses to the amount of \$2,500,000. The

¹² Hearings of U. S. Senate Committee investigating Crop Insurance, p. 39.

main reason for their loss in 1920 was due to the large declines in crop prices.¹³

On account of the extensive losses in 1920 on its crop investment plan, the company changed its policy contract radically in 1921, the thought being that the hazard of price fluctuation should not be borne by it. The enumerated risks covered by the 1921 policy were practically the same as those of 1920, being: "frost, winterkill, excess of moisture, flood, drought, insects or disease," but not hail. But in measuring the extent of the company's liability regarding these risks, the 1921 contract was a much more restricted one. Its provisions, outlining the limits of liability of the company in case of loss may be summarized as follows:

(1.) The amount of insurance was determined by multiplying the average number of bushels of grain grown on the land during the past five years by an average price per bushel. Thus in one policy issued, the average yield was 12 bushels per acre times 55 acres, or 660 bushels times 66 $\frac{2}{3}$ cents per bushel, which equaled \$440 of insurance. A conservative figure was used for both the average yield and the average price.

(2.) In case of total destruction of

the crop before harvest, the limit of liability of the company was not more than 75 per cent of the cost of crop operations up to that time, nor more than 75 per cent of the amount of insurance.

(3.) In case of partial destruction of the crop, the company could choose between two methods of settlement: first, they could pay the difference between the market value of the crop harvested and the amount of insurance; or second, they could elect to either replace in bushels of grain the amount which by the actual yield fell below the yield as stated in the policy or they could pay the market value of this difference. In exercising this second option, the company was liable also for damage to the quality of the grain, and must either replace grain of inferior quality with grain of average quality or pay that proportion of the remaining insurance (after provision has been made for deficiency in quantity) which the damage bears to the crop harvested.

To present more clearly the nature of the coverage in this contract, the following table has been drawn up. The amount of insurance,—660 bushels times 66 $\frac{2}{3}$ cents per bushel, or \$440,—was taken from a contract as issued. (See table on following page.)

¹³ Thus for the major crops of corn, cotton, wheat and oats, average price declines in 1920 were as follows:

No. 3 Yellow corn, Chicago, Apr.-May av. price, \$1.85; Oct.-Nov. av. price \$1.34 bu.

No. 1 Northern spring wheat, Minn. Apr.-May av. price, 3.07; Aug.-Sept. av. price, 2.55 bu.

No. 3 White oats, Chicago, Apr.-May av. price, 1.05; July-Aug. av. price, .80 bu.

Middling cotton, New Orleans, Apr.-May av. price, 40.86¢ Sept.-Oct. av. price, 24.16¢ lb.

AMOUNT OF { \$440 or
INSURANCE { 660 bushels $\times$ market price per bushel
Price per bushel used in policy = 66 $\frac{2}{3}$ cents

Size of Crop (Bu.)	Market Price of Wheat, \$1.50			Market Price of Wheat, \$1.00		
	Value of Crop	Op. Liab. I. Co. *		Value of Crop	Op. Liab. I. Co.	
		\$440— Value of Crop	Bu. Lost $\times$ Pr. per Bushel		\$440— Value of Crop	Bu. Lost $\times$ Pr. per Bushel
	\$	\$	\$	\$	\$	\$
1,000.	1,500	0	0	1,000	0	0
800.	1,200	0	0	800	0	0
660.	990	0	0	660	0	0
600.	900	0	90	600	0	60
500.	750	0	250	500	0	160
400.	600	0	390	400	40	260
300.	450	0	440	300	140	360
100.	150	290	440	100	340	440
50.	75	365	440	50	390	440
0.	0	440	440	0	440	440

Size of Crop (Bu.)	Market Price of Wheat, 66 $\frac{2}{3}$ ¢			Market Price of Wheat 50¢		
	Value of Crop	Op. Liab. I. Co.		Value of Crop	Op. Liab. I. Co.	
		\$440— Value of Crop	Bu. Lost $\times$ Pr. per Bushel		\$440— Value of Crop	Bu. Lost $\times$ Pr. per Bushel
	\$	\$	\$	\$	\$	\$
1,000.	666 $\frac{2}{3}$	0	0	500	0	0
800.	533 $\frac{1}{3}$	0	0	400	40	0
660.	440	0	0	330	10	0
600.	400	40	40	300	40	30
500.	333 $\frac{1}{3}$	106 $\frac{2}{3}$	106 $\frac{2}{3}$	250	90	80
400.	266 $\frac{2}{3}$	173 $\frac{1}{3}$	173 $\frac{1}{3}$	200	240	180
300.	200	240	240	150	290	180
100.	66 $\frac{2}{3}$	373 $\frac{1}{3}$	373 $\frac{1}{3}$	50	390	280
50.	33 $\frac{1}{3}$	406 $\frac{2}{3}$	406 $\frac{2}{3}$	25	415	305
0.	0	440	440	0	440	330

* Optional liability of insurance company.

From this table it should be evident that: As long as the market price per bushel of the grain is equal or greater than the price per bushel used in the policy, the company guarantees that the farmer will receive, in value at least, the amount of the insurance; when the market price is below the price per bushel used in the policy, the company guarantees that the farmer will have a crop of average quality of at least the amount in bushels stated in the policy or its equivalent market value. Stated in ratio form these two guarantees are:

Case I. When the market price per bu. is equal to or greater than the price per bu. used in the policy, that the fraction:

$$\frac{\begin{array}{l} \text{amt.} \\ \text{of} \\ \text{crop} \end{array} \times \begin{array}{l} \text{market} \\ \text{price} \\ \text{per bu.} \end{array}}{\text{amount of insurance}} \text{ will equal 1.}$$

Case II. When the market price per bu. is less than the price per bu. used in the policy, that the fraction:

$$\frac{\begin{array}{l} \text{amt.} \\ \text{of} \\ \text{crop} \end{array} \times \begin{array}{l} \text{market} \\ \text{price} \\ \text{per bu.} \end{array}}{\begin{array}{l} \text{Amt.} \\ \text{bu.} \\ \text{in} \\ \text{policy} \end{array} \times \begin{array}{l} \text{Market} \\ \text{price} \\ \text{per bu.} \end{array}} \text{ will equal 1.}$$

The company in Case I, therefore, is exposed to the hazards enumerated in the policy which effect the size of the crop, and also the hazard of a fluctuating market price of the grain insured; in Case II it is exposed only to the haz-

ards affecting the size of the crop. The company succeeded in freeing itself from the hazards of price insurance only in part, though it is evident that by setting the amount of insurance sufficiently low the hazard of price fluctuation is small.

Only a small amount of insurance was placed under this contract by the company during the years 1921 and 1922. On that which was placed a loss was sustained,¹⁴ and in 1923 the company did not attempt to sell the policy covering the major crops. They have continued, however, to place

small amounts of crop insurance on vegetables, nursery stock, potatoes and various kinds of fruits¹⁵ with the hope that later on they will be able to successfully expand their business to include the major crops again.¹⁴

III. CROP INSURANCE ON FRUIT

In the preceding section, the main attempts of insurance covering one or more of our cereal crops were reviewed. Applied to these major crops the insurance has not thus far been placed on a workable, successful basis. However, covering certain kinds of fruit a fair degree of success has already been attained; and with a view to bringing out additional and favorable features, some of the experience in what might be

called fruit-crop insurance is here presented.

The outstanding example of attempt at general crop coverage during this year is probably that placed by the Georgia Peach Growers' Exchange with the Automobile Insurance Company of Hartford. The insurance in this case was taken out by individual members subject to conditions stipulated in a general agreement drawn up between

¹⁴ Hearings before U. S. Senate Committee on Crop Insurance, p. 57.

¹⁵ *Ibid.*, p. 41.

the insurer and the exchange. The principal coverage extends from the time the policy is issued in the spring till harvest time and includes "loss or damage by fire, lightning, cyclone, tornado, wind storm, hail, rain, flood, frost, freeze and insects." In case of loss, the Company's liability is measured by

the difference between the actual value of the crop immediately after such loss or damage has occurred, and the actual expense incurred with respect to such crop by way of cultivation, pruning, worming, fertilizing, spraying, picking, packing and shipping where such expense exceeds such value.

An additional clause limits the Company's liability to a maximum of not more than 20 cents per tree up to the time of harvest and 25 cents per tree till the time of shipment. Subject to this maximum liability clause the insurance is designed to reimburse the insured for his current expenses—his costs of operation—in the event that the sum received from his crop is insufficient to cover them. While the hazard of a declining market price of peaches is not stated as one of the hazards insured, it is clear that, in the event of a poor market *accompanied with any one or more of the enumerated hazards*, such as insect damage, the Company will be reimbursing the insured for a decline in the market price as well as the other hazards; and the temptation is, of course, in the case of a poor market for the grower to allege one or more of the enumerated causes of damage.¹⁶

The protection given under the policy is not large and the Company was able thus to charge a moderate rate of 5 per cent. Considerable use was made of the insurance during the summer as a

basis for credit advances by banks, and it is understood the insurance was, on the whole, satisfactory to both grower and insurer.

TWO CASES OF CREDIT CROP INSURANCE

Another example of crop insurance on fruit is best described by the term credit crop insurance. Two contracts illustrating this type of coverage will be presented. Both were issued, not to farmers, but to companies making advances in money or materials to farmers. Whether these advances would be met later depended on whether the farmer had a crop or not, and for that reason the company desired to insure the borrowers' crops.

One of these credit contracts was taken out by a large western concern which handles apples in the states of Colorado, Idaho, Oregon and Washington. This concern markets apples for farmers to whom it has previously in many cases, if not in all cases, made advances, so that the apple growers are indebted to the concern during a large portion of each year. The policy is intended to protect the fruit company from any losses which it might incur by reason of the failure on the part of the apple growers to meet their obligations.

The principal provisions of the contract are the following:

(1) The policy covers all loss or damage to the growing apples when caused by frost, freezing, excess of moisture, drought, hail, wind, insects or disease, but not the negligence of the farmer to properly cultivate, spray and care for the crop.

(2) The amount of insurance is the sum total of advances made by the fruit company to farmers. In making an advance to a farmer, 50 per cent of

¹⁶ Expressed in the form of a ratio the Company assumes the risk that the fraction:

$$\frac{\text{variable amt. of crop} \times \text{variable price per bu}}{\text{costs of operation}}$$
 will be less than 1 at the end of the crop season or at any time during the growing season at which damage may occur.

the average crop in the past three normal years shall be considered to be the estimated yield, and 50 cents per box the price to be used to determine the amount. Thus a farmer with an average crop of 50 boxes to the acre could obtain a loan of \$12.50 per acre, and this would be the amount of insurance in this case granted to the fruit company.

(3) In case of damage to the extent that the box yield does not equal or exceed the box yield in the insurance contract, the insurance company may settle by either of two methods: Option (1)—They may pay the difference between the market value of the crop and the amount of the insurance; or, Option (2)—They may make up the difference between the contract yield and the actual yield at the market price of the apples.

This optional provision for settlement in case of damage is very similar to that of the 1921 contract of the Hartford Fire Insurance Company above (see page) 104, the option to be chosen depending on the market price of the apples at the time of settlement. If the market price is above 50 cents (price used in the contract) per box, which in most cases it would be, as 50 cents is a very conservative figure, then it will be more profitable for the insurance company to pay under Option (1) above. In such a case the insurance company is exposed not only to the hazards affecting the size of the crop, but also the risk of price decline. However, the yield figure is so conservative that only a very poor year would require settlement under either option. Accurate records are kept by the insured of all the advances made to farmers regarding the condition of the crop, time of advances, etc., which records are available to the insurance company. The amount of insurance, and likewise the premium, changes as the loans change, and a monthly settle-

ment is made with the insurance company accordingly.

The other credit policy is similar to the one just described, in that it is made out to a company organized to make loans to farmers, and covers the list of hazards: frost, freezing, wind, excess moisture, drought, insects and disease. It is different in two important essentials however: (1) Instead of having an optional method of settlement, the insurance company agrees that

if the entire amount received from the sale of any specific crop insured hereunder shall be less than the amount of advances made by the assured . . . then this company shall be liable for the differences between the amount actually received from the sale of such crop and the amount of insurance applying thereon.

And (2) the rate of premium charged in this latter contract depends on the limit of liability of the insurance company. This rate provision is different from any of the crop contracts already mentioned, and will be explained further.

In order to determine how much the insured should be allowed to lend to a farmer and still be covered by insurance, the insurance company states that two experienced representatives of the assured shall estimate the probable number of boxes of fruit, and on this the company will be liable up to \$1 per box. The higher the amount loaned per box, however, the higher the premium charge to the assured. Thus, suppose the estimated crop yield of oranges (this policy covered citrus fruit in Florida) were 50 boxes per acre for a given farmer, and the insured loaned at the rate of 50 cents per box. The amount of insurance would be \$25 per acre, and if the market value of the crop fell below this figure at harvest time, the insurance company would make up the difference. The rate

charged would be 5 per cent. Were the price per box 60 cents, then the loan would be \$30 per acre, and the insurance company would pay for market values below this figure. The rate charged would be 6 per cent. This graduated schedule of rates as given in the contract is as follows:

<i>Advances and/or guarantees per box</i>	<i>Rate of Premium</i>
20¢ or less	2%
21¢ to 30¢	3%
31¢ to 40¢	4%
41¢ to 50¢	5%
51¢ to 60¢	6%
61¢ to 70¢	7%
71¢ to 80¢	8%
81¢ to 90¢	9%
91¢ to \$1.00	10%

In no case shall the rate be less than 2 per cent.

This policy not only covers the hazards affecting the size of the crop, but, where the crop has been damaged by any of the causes mentioned in the contract, it covers a decline in market price also. In ratio form, the company's risk is that the fraction

$\frac{\text{size of crop} \times \text{market price}}{\text{amount of insured's loan}}$ will be less

than 1. Obviously the larger the denominator is the greater the probability of the fraction being less than 1, and therefore the greater the rate should be.

Another interesting provision should be mentioned. In the event that the company pays a loss, the assured shall subrogate to the insurance company to the extent of the payment their claim on the owner of the crop, and the insurance company obligates itself, in turn, to cancel and not attempt to collect from said owner such subrogated claim. The farmer may, therefore, benefit to a limited extent because of his creditor's crop policy.

FROST INSURANCE

In 1920 a representative of some of the leading fire insurance companies of the country made an extensive study of the frost hazard in Florida. Data were gathered from all of the weather stations, from state and county sources, and from the citrus fruit growers themselves. On the basis of this material rates were determined, and during the past four years a considerable amount of frost insurance has been written. More recently the field of frost insurance has been extended to the California citrus fruit growers, to apples and certain other kinds of fruit in Georgia and California, and also covering injury by frost or freeze to the bearing tree itself.

One of the first points of interest with regard to this kind of insurance is that it is placed largely with associations of fruit growers rather than individuals. This is advantageous to the insurance company for two reasons: it affords it a more uniform class of risks, thereby limiting the possibility of only the poorer risks taking out insurance; and secondly, it centralizes its dealing with the insured into one financially responsible head. The insurance is taken out by the association and distributed among its members. In making up the total amount, it is necessary, of course, to determine for each fruit grower the amount of insurance to be applied to his farm.

To insure an orchard, an estimate is first made of the probable number of boxes the crop will harvest, the insurance being written after the fruit has set on. This estimated number of boxes is then multiplied by a conservative price per box (around 75 per cent ¹⁷), which determines the amount of insurance. If later there prove to

¹⁷ Statement of Mr. J. B. Miller, General Agent, Frost and Freeze Department of several companies.

be more boxes than estimated, or less, then the amount of insurance per box is adjusted accordingly. The company then insures the farmer through his association against loss or damage by frost or freeze only while his fruit is growing and ripening, up to the time of packing for shipment.

In case of total loss on all or a part of the crop, the total amount of insurance per box is paid. In case of partial loss, the company's liability per box is such proportion of the amount of insurance per box "as the ascertained damage . . . bears to the sound value of such crop on day of loss had no loss or damage by frost or freeze occurred." It is essential that the amount payable be expressed on the per box basis, as there may be a total loss on a part of the crop and only partial on another part. It may be also that a part of the crop has already been harvested at the time of the frost, in which case a part of the crop would have no damage at all.

The nature of this risk is very similar in form to that of hail insurance, the risk of a variable price being eliminated by entering a fixed amount per box. Similarly the insured becomes a co-in-

surer with the company when the value of the crop is more than the amount of the insurance, and is in a position to profit from his insurance where the market value drops below the amount of the insurance. A loss of less than 10 per cent (in one policy 15 per cent) is borne by the insured. He is required also to keep a complete record of the harvesting, shipping and sale of his crop.

Another interesting point regarding this insurance is that the bulk of the business is distributed among a pool of several of the leading insurance companies of this country, who in turn distribute their share of the risk among a large number of smaller companies. Such an arrangement seems highly desirable in so hazardous a business as frost insurance.

What success frost insurance will meet with it is far too early to predict. It might go for many years with no loss whatsoever, and one big frost could more than offset the accumulated profits. During the 1923 season some loss was incurred in California; for the year 1924, the period of frost hazard has not yet passed.

IV. HAIL INSURANCE

The most successful line of mono-risk crop coverage is hail insurance. It has been on the market for over three decades and has, during this time, won for itself a permanent place among the many kinds of property insurance. It will not be possible here to devote the space necessary for a proper consideration of this type of coverage, hail insurance being, in view of the annual premiums received and losses paid, more important than all of the other types of crop insurance combined. Thus, on August 7th of this year, a single loss

amounting to over \$850,000 was incurred by a group of hail companies underwriting the Connecticut Valley Tobacco Association. "Hail fell unaccompanied by rain and ruined or badly damaged 5000 acres of tobacco."¹⁸ All that can be done here will be to briefly review the development of this line of insurance, its recent accomplishments, together with a few special problems connected with it.

The earliest hail insurance written in the United States was by a mutual company in 1880.¹⁹ This organization

¹⁸ From *Agricultural Co-operation*, Sept. 22, 1924, pub. by the U. S. Department of Agriculture.

¹⁹ V. N. Valgren, *Hail Insurance on Farm Crops in the United States*, U. S. Department of Agriculture, Bulletin #912, p. 2.

was formed in Connecticut by a group of tobacco growers. It was followed in 1888 by the St. Paul Fire and Marine Insurance Company, of St. Paul, Minnesota—a stock company. They began writing hail insurance in that territory after having made some study of policies issued in Germany.²⁰ By 1900, there were 37 mutuals and 1 joint-stock company; by 1905, 37 mutuals and 2 joint-stock companies; by 1910, 28 mutuals and 5 joint-stock companies. Following 1910 there was a very rapid growth, both in the number of companies and the amount of insurance premiums, so that by 1919 the premiums of the mutuals had risen to \$4,775,000, while the joint-stock companies' premiums exceeded \$19,000,000.¹⁹

The year 1919 proved to be the peak, however, in hail underwriting, the years since then having been considerably smaller. Thus from comparative statistics compiled by a leading insurance journal,²¹ premiums collected in 1923 by all joint-stock companies, leading hail mutuals, and state hail insurance funds, amounted to slightly less than two-thirds that of 1919. This decline has been due in large measure to the smaller income of the farmer and the declining value of his crops.

Another point of interest in recent years is the financial experience of the companies writing hail insurance. The bulk of the hail business is written with the joint-stock companies. With them, since 1919, each successive year has witnessed a higher ratio of losses paid to premiums received. The result has been that, during the past year, a number of the companies have discontinued writing this line. Premium rates have not been increased, however, greater care being taken in the placing of the

insurance, a deductible clause introduced designed to cut out small losses, commissions have been revised, and renewed effort made to keep the business on a profitable basis. While the effect of the rising losses is considered to be only part of a cycle which it is hoped will be followed by a few years of small losses, it emphasizes once more the importance of long and continued experience in determining probabilities of loss from the elements of weather.

With respect to the type of insurer, hail insurance differs from the other types of crop insurance already considered in that it has been undertaken not only by joint-stock companies and mutuals but also by the governments of several states. North Dakota is the pioneer, as well as the leading state in providing state hail insurance, passing its law in 1911. The operation of the law was not satisfactory for several years after its passage and in 1919 it was thoroughly revised. Other states entering the field in recent years are Montana, South Dakota, Nebraska and Oklahoma. During the year 1923, out of a total of nearly eighteen and one-half million dollars received in hail insurance premiums, joint-stock companies collected nearly twelve million, mutuals one and one-half million, and state funds a little over five million of which North Dakota's share was nearly four million.

Finally, reference should be made to the risk assumed under the standard hail policy. The usual policy contract insures against "all direct loss or damage by hail to the property described and for the term stated." Thus, suppose Farmer A is insured for \$10 per acre covering his wheat crop and a hail storm completely destroys his crop. The insurance company is liable the

²⁰ *The National Underwriter*, Feb. 17, 1921, p. 14.

²¹ *The National Underwriter*, Hail Number, March 18, 1924, p. 9.

whole \$10.. Or if a hail storm destroys a prospective crop (at the time the storm occurs) of 40 bushels to the acre to the extent that the farmer gets only 10 bushels per acre, then three-fourths of the crop is destroyed, and the liability of the company to the insured is \$7.50. The company's liability in dollars in either case is clearly defined: it is that proportion of the insurance per acre which the damage done by hail bears to the undamaged crop before the hail storm occurred.²²

Whether the company, in fact, pays all direct loss in case of hail damage will

depend in each case on the relation which the amount of insurance bears to the value of the crop. In cases where the farmer takes out insurance to an amount above the prospective value of his crop at the time of loss, (which in recent years joint-stock companies have been trying to prevent), the company assumes the risk of all direct loss by hail plus an additional sum; in cases where the value of the crop is greater than the amount of insurance, the company assumes that proportion of the direct loss which the insurance carried bears to the value of the undamaged crop.

V. PRINCIPLES AND PROBLEMS

In analyzing the various policies which have been issued covering the hazards to growing crops, the point was made, in each case, that the risks to the insurance company may be expressed as a ratio in which the measure of the risk is the probability that the ratio will become less than one.²³ (For footnote see page 113.)

Knowing the ratio which expresses the risk to which a company is exposed, it would be highly desirable to know how often and the extent to which this ratio will fall below one. This is the most important difficulty in the path of a successful solution of the problem of crop insurance. In any line of insurance during the first few years there is very little data compiled in suitable form and reliable which will show the measure of risk assumed. Having no experience to which to refer to, the only

thing possible is to make an estimate from general statistics. Thus far, in the case of crop insurance covering grain, these estimates have not been sufficiently accurate to make the business profitable.

What data are needed by the insurance company in order to make a fair estimate of the degree of risk they are undertaking? If the insurance company proposes to insure the farmer only against damage affecting the size of the crop, then it needs to know, first, what is a normal crop for a period of twenty or thirty years; and second, the number of times and the extent each time that the crop yield falls below the percentage of normal against which it desires to insure the farmer. The chart on page 114 illustrates these two points, the data used being the yield per acre of spring

²² In ratio form this would be:
$$\frac{\text{damage by hail} \times \text{amount of insurance}}{\text{undamaged crop}}$$

On the risk assumed, the standard clause reads: "In event of total destruction by hail only of the crops herein described, or any part thereof, the amount payable hereunder as to each acre where this policy covers shall be the amount per acre named herein, and in event of partial destruction by hail only of the crops, or any part thereof, described in this policy, the amount payable per acre under this policy shall be in such proportion to the amount per acre specified herein as the damaged portion of said crop or crops bears to the sound condition of the particular crop or crops so damaged."

²² Bringing, for convenience, these ratios together, they are as shown in the accompanying table:
The risk that the ratio will become less than *one*:

Optional-Sale contract	$\frac{\text{variable amt. of grain} \times \text{variable price}}{\text{amount of insurance (\$5)}}$
Montana Company	$\frac{\text{variable amt. of grain} \times \text{fixed price (\$1 for wheat)}}{\text{fixed costs (\$7)}}$
Pennsylvania Company	
Missouri Company	$\frac{\text{variable amt. of grain due to storm}}{\text{undamaged crop}}$
Hartford Fire Insurance Company	$\left\{ \begin{array}{l} \text{Acreage Investment} \\ \text{Average yield (optional)} \end{array} \right\} \left\{ \begin{array}{l} \frac{\text{variable amt. of product} \times \text{variable price}}{\text{fixed costs}} \\ \frac{\text{variable amt. of crop} \times \text{variable price}}{\text{amount of insurance}} \\ \frac{\text{variable amt. of crop}}{\text{amt. bu. in policy}} \end{array} \right.$
Automobile Insurance Company contract covering peach crop	$\frac{\text{variable amt. of crop} \times \text{variable price}}{\text{costs of operation}}$
Credit Crop Policy	$\frac{\text{variable size of crop} \times \text{variable price}}{\text{fixed amt. of insured's loan}}$
Hail Insurance Contract	$\frac{\text{variable amount of grain due to hail}}{\text{undamaged crop}}$

There are several points in common with regard to these ratios. It will be observed:

(1) That the larger the fixed denominator is, either in amount or dollars, the greater the probability that the ratio will be less than one. Thus in one case the denominator was determined by taking a 50 per cent crop and multiplying it by a price that was considerably less than one-half the usual market price. The probability, in this case, of the ratio being less than one is very slight. In another the denominator was taken as a conservative estimate of the cost of production. The probability in that case was large.

(2) That in some cases only a part of the hazards are assumed as represented by the numerator, and in some cases all of the hazards are assumed. Thus in storm insurance, the hazard of destructive storms; in two cases all of the hazards which affect the amount of the crop are assumed; and in five cases all of the hazards which affect the amount, as well as the important hazard of a variable market price for the product, are assumed.

(3) That since the insurance company is liable when the ratio falls below *one*, it follows that the extent of their liability is one minus the fraction representing the ratio, times the amount of insurance. Thus: Company's liability = $(1 - \text{ratio}) \times \text{Amount of Insurance}$. To illustrate this in the case of the Hartford Fire Insurance Company's "Average Yield" policy, the Company's liability is optional. In one case it would be, with a \$1,000 policy, the market price of grain \$1, and an 800 bushel crop harvested: Company's liability = $\left(1 - \frac{800 \times \$1}{\$1,000}\right) \times \text{Amount of Ins.} = \$200$. In the other case, with the amount of grain stated in the policy as 1,200 bushels: Company's Liability = $\left(1 - \frac{800}{1,200}\right) \times \text{Amount of Insurance} = \$333.33$.

(4) That where the amount of insurance is fixed as a definite sum in the policy in advance, the contract becomes a valued policy; and where the amount of insurance shall in no event exceed the loss sustained by the insured, the policy becomes one of indemnity; e. g. the Automobile Insurance Company policy.

wheat for the state of Minnesota.²⁴ Finally, it must have this information for each particular district in which it intends to place insurance. This third point is the one of greatest difficulty. There have been, for many years past, data compiled by the U. S. Department of Agriculture, in the Bureau of Crop

Estimates, showing crop yields per acre by states and for the United States as a whole. In recent years also (*i.e.*, beginning about 1915 and in some localities farther back), there have been compiled county figures showing the yield per acre. There is, in addition, the decennial U. S. Census, which gives

24

1899=13.4 bu. per A.

1900=10.5

1901=12.0

1902=13.9

1903=13.1

1904=12.8

1905=13.3

1906=10.9

1907=13.

1908=12.8

1909=16.8

1910=16.

1911=10.1

1912=15.5

1913=16.2

1914=10.5

1915=17.

1916=7.5

1917=17.5

1918=21.0

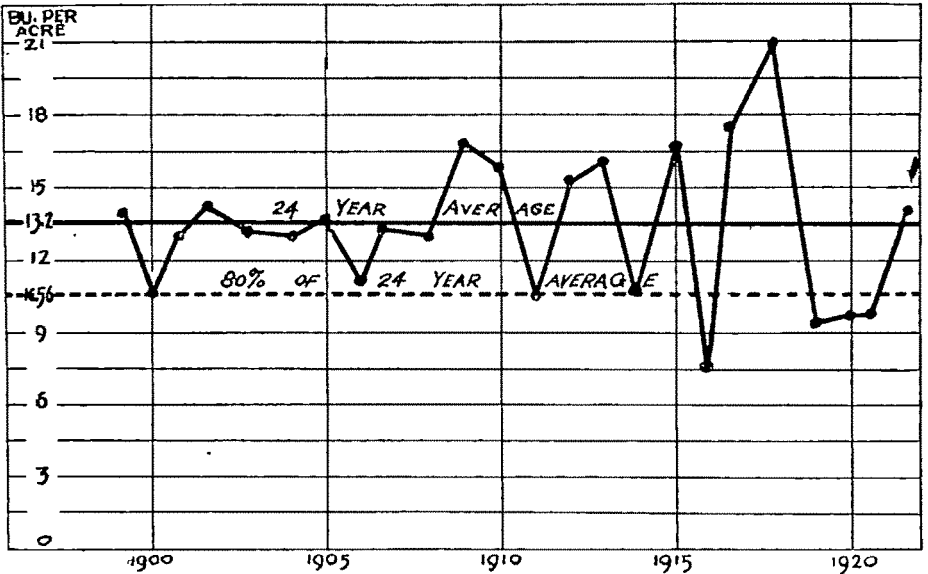
1919=9.3

1920=9.5

1921=9.5

1922=13.7

24 Yr.



Aver. =13.2 bu. per A.

80% " =10.45 " " "

Illustration of the Data Needed to Estimate the Degree of Risk in Insuring a Farmer Against Damage Affecting the Size of His Crop

If the price per bushel, to measure the company's liability, is fixed at \$1 per bu., then the amount of insurance per acre, with 80 per cent of average yield insured, would be \$10.56 per acre; and

$$\text{Company's Liab.} = \left(1 - \frac{\text{yield} \times \$1}{\text{Amt. of Ins.}}\right) \text{Amt. of Ins.}$$

Simplifying: = Amt. of Ins. - (Yield × \$1) for those years in which the yield is less than 80 per cent.

For year 1900 = \$10.56 - \$10.50 = \$0.06

1911 = \$10.56 - \$10.10 = \$0.46

1914 = \$10.56 - \$10.50 = \$0.06

1916 = \$10.56 - \$7.50 = \$3.06

1919 = \$10.56 - \$9.30 = \$1.26

1920 = \$10.56 - \$9.50 = \$1.06

1921 = \$10.56 - \$9.50 = \$1.06

Total net liability per acre = \$7.02 for 24 yrs.

or per year 30 cents approximately. Loading 66 2/3 per cent the premium charge would be 50 cents per acre on what would be called \$10.56 worth of insurance, or 4.7 per cent premium rate.

county and state figures. Individual states, in some few cases, might also furnish some material supplementing the United States figures. Thus, in recent years several states, besides making their own annual estimates, by counties, of crop yields, have passed laws requiring every three years that the assessors take a census of crops planted and harvested. All of this material is valuable for insurance purposes in giving a basis for general estimates, but is not worked up at the present time into detailed form sufficient to give assurance that individual risks can be based upon it.

Consider, for example, an individual county. It is the exception rather than the rule to find a county so uniform in kind of soil and in weather conditions that a figure giving the average yield for the county would be representative of each individual farm. It would be still less accurate to assume that the fluctuations from year to year in the yield of an individual farm would be similar to the fluctuations for the county. One cannot turn to the farmer who desires insurance to find out what his yield has been for a series of even a few years. Farmers very seldom keep records, and if asked to

EXTENT AND CAUSES OF YEARLY CROP LOSSES,* AVERAGE 1909-1921

	Deficient Moisture	Excessive Moisture	Floods	Frost or Freeze	Hail	Hot Winds	Storms
	%	%	%	%	%	%	%
Corn.. . . .	14.6	4.	.9	2.3	.4	1.9	.7
Wheat.	12.1	2.4	3	3.8	1.1	2.2	.3
Oats.	13.1	2.9	.8	.9	.8	2.2	.4
Barley... ..	16.9	1.9	.2	.7	1.3	3.4	.8
Potatoes . .	13.8	3.2	.3	1.5	.1	.8	.0
	lbs. per A.	lbs. per A.	lbs. per A.	lbs. per A.	lbs. per A.	lbs. per A.	lbs. per A.
Cotton	32.5	17.9	16.4				

	Plant Disease	Insect Pests	Animal Pests	Defective Seed	Total
	%	%	%	%	%
Corn	.3	2.9	.2	.6	29.3
Wheat	3.2	2.5	.2	.1	30.
Oats.....	2.3	1.1	.1	.2	25.4
Barley.....	2.1	1.1	.2	.1	29.4
Potatoes. . .	5.2	3.4	.1	.3	30.2
	lbs. per A.	lbs. per A.	lbs. per A.	lbs. per A.	lbs. per A.
Cotton.....	6.2	40.9	.	.6	118.7

* From Yearbook, U. S. Department of Agriculture, 1922, appendix giving statistics of grain crops.

estimate the yield per acre are apt to give figures from memory that cannot be depended upon.

There is another group of data available which should be mentioned. In the fall of each year since 1909 the U. S. Bureau of Crop Estimates has sent to its corps of crop reporters throughout the United States a questionnaire to be filled out, giving the causes of crop damage for the year. This form, after requiring the total loss for the year, lists the various items which might cause a loss, such as adverse weather conditions,—drought, floods, hail, frost, hot winds, etc.; plant diseases, as blight, rot, rust, scab, etc.; insect pests, as boll weevils, cut worms, green bugs, etc.; animal pests; and defective seed. The results of these figures have been made up by states and for the United States, and extend over a period, up to the present, of sixteen years. The preceding table shows the average loss in the United States, for the leading causes from 1909 to 1921, or thirteen years.

The figure of "total" in the right hand column is the percentage of a "normal" crop (*i.e.*, 13 year average) that is destroyed each year by all of the causes shown. It will be seen that with the exception of cotton, the major cause of damage was in each case drought. For cotton, insect pests (the boll weevil), was the leading cause.

This material has the same limitation as that of annual yields, *viz.*, that it applies to states or the country as a whole, rather than to individual localities. The figures are available, however, for the preparation of county totals, and in some cases separate sections of counties. Were these worked up for insurance purposes, the companies would have what might be called a key rate to start with for each county, and from this make variations to fit conditions in each locality. The figures prepared

of annual crop yields could also be compiled in still more detailed form, though not without a considerable amount of work. In the crop reporting system of the Department of Agriculture, volunteer and paid representatives give figures for each individual locality, the reports being most numerous in agricultural areas of greatest importance. By arranging these individual annual reports in a series, it would be possible in many cases to work out fairly accurate "normals" and deviations from year to year from the normal.

Were the data compiled in suitable form, so that a rough estimate of the hazards involved could be made, it still remains a problem what form the insurance is going to take. What would the farmer like to have insured and be willing to pay for? What can the company successfully insure? There are at least two purposes for which the farmer would like to have crop insurance. One is as a basis of credit upon which he may borrow at his local bank. The insurance in this case would not need to cover more than 50 per cent of the estimated fall value of the crop. The rate, however, must not be so high that the premium, together with the discount charged by his bank, will become an unduly heavy burden.

The second purpose for which the farmer would like insurance is to cover his costs of production. Two points at once suggest themselves; how much is the farmer willing to pay for this protection; and second, what are his costs of production? There is no practical value in preparing an insurance contract which the farmer will not buy, and of first importance in this respect is the rate charged. From the experience which the companies have had in writing hail insurance, it is reasonable to assume that the tier of states from North Dakota to Texas would be willing to pay between 10 per cent and 15 per

cent, and the states east of this group 5 per cent or 6 per cent. With this rate to be charged, could the farmer's costs of production be insured? The answer to this question depends entirely on what the farmer would like to have included in his costs. If they are to include what might be called prime costs; *i.e.*, seed, plowing, disking, or an amount sufficient to start the farmer again in case of total loss, the insurance may be written within the limits of a reasonable rate; if they are to include all of the farmer's costs, including estimates of his own labor and that of his family, it is not only impractical, because of the rate that would have to be charged, but also impossible, because of the indefinite and variable character of the costs, to write such kind of insurance.

There have been many excellent studies of farm costs, both over a wide area for a particular year and for a concentrated area over a series of years. A conclusion often reached is that, entering the farmer's own labor at a very conservative figure, he is consistently losing money. Another well-known fact is that from farm to farm costs vary widely. In the "acreage investment" policy issued by the Hartford Fire Insurance Company, these variations in farm costs (or what farmers thought was their farm costs) constituted one of the first difficulties they encountered. All that could be done was to take a conservative estimate of the farm costs and let that be, for insurance purposes, the investment. When this is done, however, unless by the merest coincidence the estimate and the actual costs are the same, investment crop insurance ceases to be such, and becomes simply insurance up to a certain amount per acre. It might be a good selling point to call the insurance "investment insurance" and point out to the insured that the amount

he is insured for covers his main costs. But in that sense any crop policy which pays a benefit might be called "investment insurance," since the benefit will meet a part of the costs.

There has been considerable discussion, among those most vitally interested in working out crop insurance to a practical basis, as to whether it should or should not insure costs of production. The answer to this would seem to be—if total costs, no; if partial costs, yes. But the real question involved is not one of costs of production insurance or not, but, how much per acre is the insurance to be? Suppose, for example, that in a given case total estimated costs could be accurately determined and were found to be \$14 per acre, and that the important prime costs of seed, plowing, disking, drilling and rolling were found to be \$4 per acre. Between these two limits there is a range of \$10, and the important question is, within these limits, just how much per acre shall this farmer be insured for? If his insurance is to serve as a basis for credit, or to avoid what might be called the catastrophe hazard (*i.e.*, a crop loss of say 75 per cent or more), he need be covered to an amount of perhaps not more than \$5 or \$6 per acre, and the rate will be relatively low; if his insurance is to cover the major part of his costs of production, say up to \$10 per acre, the rate will need to be higher, since the probability of loss is greater.

In this connection the second credit crop policy cited above offers an additional suggestion. The policy in that case was taken out by a company financing fruit growers, and the amount which they loaned to a farmer was the amount for which they were insured. If this amount was large the rate was high, and if it was low the rate was low. (See schedule, p. 109). Carrying this graded-rate plan over to insurance on

the major crops, a similar schedule might be worked out there. The agent, in soliciting the farmer's insurance, might then offer him a policy which, in the event of total crop failure, or such a failure that it is unprofitable to harvest the crop, would pay him \$5 per acre and at a rate of say 3 per cent; or he could offer \$8 per acre insurance at 6 per cent; or \$12 at 10 per cent. This plan would have this advantage, that in case a farmer wanted insurance, in which the probability of the insurance company having to pay was relatively high, it would be perfectly clear to him that he was paying an extra premium for it.

By properly grading the schedule of rates, also, incentive to the farmer to take out a small amount per acre instead of large amount would result. This would enable the insurance company to get a wide spread of risk and require loss payments less often than with the higher limits. It would also enable them to accumulate individual crop records. In time it should result in the farmer viewing his policy as a means of protection against unusual damage, and not, as at present in many cases, a source of profit. And with respect to hail insurance at least, the farmer is not to be blamed for his present attitude either. When fire protection is effected at considerably less than 1 per cent, and he is paying from 6 per cent to 12 per cent for his hail insurance, it is quite natural that he should hope for some return on his outlay.

A problem of equal difficulty to that of determining the amount of insurance, is what hazards shall be covered. Referring to the ratios given in the preceding sections, it will be seen that in some cases only the hazards affecting the amount of the crop are assumed, while in others both the risk of a variable amount and the risk of a variable price are covered. From the farmer's

point of view, the latter hazard is of equal or perhaps greater importance than the former. From the company's point of view, it is a question of being able to cover this additional hazard and still keep the premium within reasonable limits. It should be observed here that in practice the farmer has been insured against a declining market price only on condition that his crop was damaged by weather or plant and animal diseases.

There are two methods by which these hazards may be assumed, whether one or both. Suppose the company desires to cover only the hazards affecting the amount of the crop. In this case a fixed price per bushel would have to be assumed as the price at which a loss will be measured. Then the company can either agree to pay for all loss in crop yield below a fixed limit at the assumed price, or it may agree to meet any loss (usually above 5 per cent or 10 per cent) which the insured may have in such proportion of the amount of insurance as the damage bears to the undamaged crop. The two cases are illustrated in the accompanying chart. Here three examples are assumed: a one-third crop loss, a two-thirds crop loss, and a total crop loss. The liability of the company is shown in each case. In the event of total loss both plans pay the same; but where a partial loss only occurs, in Case II the company is called upon to pay in part (unless the loss is slight) each time; while in Case I, unless the amount of insurance is equal to the full estimated value of the crop, the company will be called upon to pay only after considerable loss has resulted. In the illustration shown, one-half of the crop would have to be destroyed before the company's liability would begin. The Montana crop contract reviewed above illustrates Case I, while the usual hail contract illustrates Case II. As applied to a

CHART ILLUSTRATING TWO METHODS OF INSURING CROPS

□ TOTAL COLUMN = VALUE OF UNDAMAGED CROP.

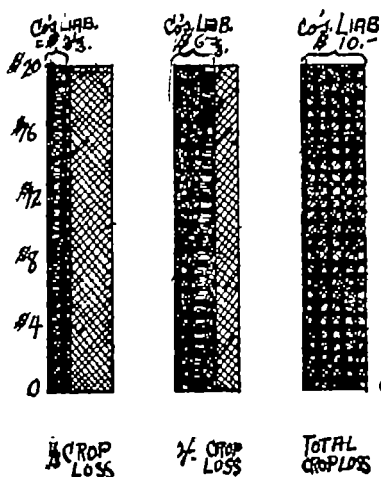
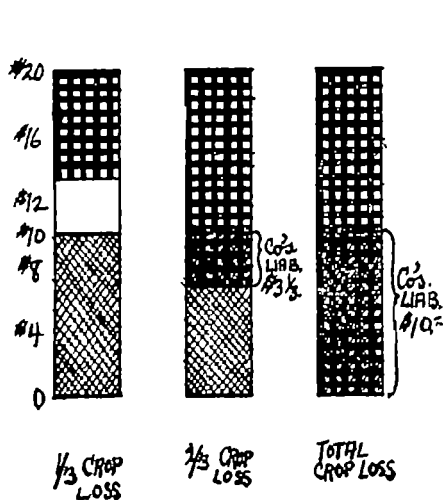
▨ CROSS CHECK = AMOUNT OF INSURANCE.

■ DARS = AMOUNT OF DAMAGE.

▩ CHECKS AND DARS OVERLAPPING = LIABILITY OF COMPANY.

CASE I

CASE II.



AMT. OF INSURANCE { 15 bu. crop
at 66 2/3¢ per bu = \$10.00 per A.

UNDAMAGED CROP = 30 BU. per A.

crop policy, plan I would seem to be better suited in this respect; namely, that under a crop policy covering a large number of hazards the insured is very apt every year to have a loss from one or more causes, and in such event, under plan I, the loss would have to be large enough to bring the value of the crop down to the amount of insurance before it would be considered; under plan II each separate loss would need to be adjusted.

The insurance company's liability in Case I above, when it does not assume the hazard of price fluctuations, is:

$$\text{Company's liability} = \frac{(1 - \text{variable amt. of crop} \times \text{fixed price})}{\text{amount of insurance}} \times \text{amt. of insurance.}$$

or simplifying:

$$\text{Company's liability} = \text{Amt. of Insurance} - (\text{variable amt. of crop} \times \text{fixed price});$$

and with the hazard of a variable market price assumed it would be:

$$\text{Company's liability} = \text{Amt. of Insurance} - (\text{variable amt. of crop} \times \text{variable market price}).$$

This point should be observed: that if the company assumes the risk of a vari-

able market price, while the difficulty of measuring the risk assumed is thereby increased, the actual probability of loss is not necessarily increased, and for certain crops may be decreased. That is to say, for any given year an unusually small crop may result, but the price per bushel that year may be high and thus offset the low yield; and if year after year there are more instances in which yield and price move in opposite directions than in the same direction, then the probability of loss to the company is lessened rather than increased by including in the policy the element of price. This thought suggests itself, of course, from the reciprocal relation of supply and price.

Particularly in those crops in which the United States produces a large fraction of the world's supply, a large crop any one year will have a correspond-

ingly low price, or a small crop, a high price. But this would only be true provided the increase or decrease in supply was due to a *per acre increase or decrease*, and not one due to variations in the yearly amount of land planted to the crop. It would then be true for insurance purposes, provided the company placed insurance over a wide area and to such an amount that the average yield on the crops they insured was approximately the same as that of the United States as a whole. It is probable that for many years the insurance company would have to consider yield per acre and price as two independent risks, and thus be subject to a decline in one or the other or both. If the element of price is to be included, it must be done by increasing considerably the rate or reducing the amount of insurance.

The Agricultural Situation as Viewed by a Western Senator

By HON. ARTHUR CAPPER
United States Senator

IN the valley of travail which agriculture has traveled in the last four years, and from which it is now beginning to emerge, farmers have had time to do some real thinking. At first we "saw through a glass darkly," but the economic outlook has grown plainer with the years. As a result of this solid and intelligent consideration given to rural problems, the future should take care of itself in a happier way.

The overproduction debacle has been a nightmare. And it has been made more acute in most lines by the operations of farmers in other countries. Take wheat for example. In the five years before the war the United States harvested less than 50 million acres annually of the great bread crop. But in 1919, 75,694,000 acres were cut. Of course the acreage was then reduced slowly, to 57,111,000 acres for 1924, but it could not be brought down fast enough to avoid a slump in prices which drove tens of thousands of producers into bankruptcy. Meanwhile Canada increased its wheat production in the postwar years, as compared to the prewar, 129 per cent! Australia contributed 32 per cent, and Argentina 6 per cent.

And all that at a time when European markets were suffering from a diminished buying power, because of the poverty of the people there!

This is just an example of what occurred in other lines of farm production.

It is perfectly evident, then, that greater care must be given to try to

balance consumption with production. Which is easy to say. But doing it with crops is something else again.

Weather, insects, diseases and a hundred other items enter into the calculation: these are things which a shoe manufacturer, for example, need not consider.

ADJUSTING PRODUCTION TO CONSUMPTION

As another item, let's consider potatoes. And at a risk of bringing back to memory some unhappy history, we will take the crop of 1922 with a yield of 4.1 bushels per capita. Now it has been shown by experience that when the crop is above 3.6 bushels per capita the skids are thus greased for a fine slide. This occurred in 1922 with some extra emphasis. Many thousands of winter potatoes were not even dug.

I know there was some increase in the potato acreage that year, but the main trouble came from favorable growing weather, a considerable freedom from disease and insect injury, and the resulting high yields.

And, of course, it is all wrong that a big crop should bring far less money to growers than a small yield. But on an average we are confronted with the hardboiled fact that it does. Now so far as the long range trend goes there is a faint prospect of a little relief from that, maybe, by the development of various kinds of storage facilities. Potatoes supply an excellent example: it is true that dehydrating is making some progress in this field,

which is a mighty fine thing. But it is a slow development.

In the meantime the grocery bills of farmers must be paid.

And so I say that despite the extreme difficulty of adjusting production to consumption it is a problem of major importance, which should have all of the thought and study we can bring to bear on it. Obviously we need all the information we can get on probable acreages and yields. All agencies, such as the agricultural colleges, county agents and farm papers should help in bringing this to the attention of farmers. It also is evident that organized agriculture has an increasingly important place to fill in this field.

But after the food is grown then comes the problem of selling it to the best advantage. And here we find that conditions are changing rapidly.

Especially is the long range trend of the foreign demand for American food on the decline—and I say this with a full knowledge of the interest European buyers have been showing these last few months in the wheat crop of 1924. Unless there is another great war, or some other world calamity, I do not expect to see American farmers selling much food to Europe 10 years from now.

CITY NEEDS AND MARKET EXPANSION

But in the meanwhile we find an amazing expansion in the home market—for which we should give many thanks. The population of America is growing steadily, perhaps as much as one and one half million persons a year, largely in the cities. These great centers of life are fairly prosperous, and in my judgment they will continue to be. Personally I have a tremendous belief in the future of the industrial life of America—I think the

growth of manufacturing in the United States is one of the marvels of the age. Anyhow the income of city workers is 99 per cent higher than it was ten years ago, and the cost of living is but 71 per cent more—their wages will buy 36 per cent more food than in 1913.

This is of extreme importance to farmers because of the old axiom that when city workers have money they will spend enough of it to buy an ample supply of food of good quality.

So we find that the growth of the cities has been, and will continue to be, an item of vast economic importance to farmers. The relatively declining proportion of agricultural population may constitute, as many students believe, an element of political danger. But this is something that the years will show.

In the home market there is hope. It is among our own folks, whom we can afford to study, so we can please them.

This effort to "register" on exactly what the cities want in the way of food will be aided by the growth in co-operative marketing. I know mistakes have been made in this field. But I would like to have someone point out to me a line of American business in which the managers have not made errors! Through it all this united effort in selling has gone ahead steadily, handling a larger proportion of the products of the farms every year. It will continue to grow.

CO-OPERATION OF CONGRESS

I am glad Congress has been able to help in the growth of the new agriculture. Certainly a farmer can now co-operate with his neighbor across the road without running a risk of going to jail. We have made substantial progress with the land banks and with rural credits in general. I

presume Congress will continue to keep closely in touch with the needs of agriculture, and to handle legislation in a way which will please the producers. At least I am convinced that it would be the part of political wisdom for the members to do this. In national legislation the intelligent, well-read farmers of today want sound action, and not hot air from speakers at the pre-election picnics.

Briefly, American agriculture needs well-balanced production, of quality products, sold in the most economical way, which includes a larger place for co-operative marketing. It must have from time to time, the benefit of sound legislation by Congress. Please let me say, in that connection, that as a business man I do not want Congress

to "horn in" to business any more than is necessary. But—and a bushel of butts! In this modern and complex organization of our economic and social life we cannot let the great marketing centers for livestock and grain, for examples, go "hog wild" with no rules of the game, despite the fact that this might have been safe a generation ago. Laws must be based on the life of today—on conditions now, not those of the past.

So far as the future of agriculture goes, I'm an optimist. I think we are through the main force of the typhoon which all but engulfed agriculture. But for a little while yet the going will not be easy, and we must keep a "weather eye" constantly on the southwest horizon.

A National Agricultural Program¹

By HENRY C. WALLACE

Late Secretary of Agriculture of the United States

DURING the war when the need was for greatly increased agricultural production the national program was in fact a farm management problem. The urge was to produce without limit and at whatever cost, and the problem was how best to direct the farm operations to bring the result desired. During the war we were filled with patriotic fervor. The slogan was "Win the war—damn the expense" and we did things ourselves and urged others to do things which we would not have done under other circumstances. We had a national agricultural program, but it included only increased production and the means to that end, without regard to cost or consequences then or in the future. Because of that farmers generally have had a hard time of it since the war. Almost everybody assented to the program at that time, but it is unfortunate that the success with which it was carried out has made us so much trouble.

Now the need is not for greater production, but for a better adjusted production and to some extent for a reduced production. That is a very different matter and much more difficult. The plowing up of meadows and pastures and seeding to grain is quickly done. Getting the grain fields back into grass is not so easy. During the war there was a good market for everything produced. Now market demand is uncertain with little assurance of more certainty in the future. During

the war prices were reasonably good and all could join in urging large production. Now men who value their reputations as wise counselors hesitate to advise.

To suggest that the national agricultural program for 1924, or for any other period except in time of national emergency, is solely a problem of farm management is almost to say that there is no national program. Good farm management is necessary to the successful carrying out of any program, but it is not a program except as it applies to the individual farm. In times such as these the problems of farm management on most farms are reduced to the simplest terms and can be stated very briefly. For example: produce as much as you can and as cheaply as you can of what you can produce best; spend as little as you can; do without everything you can; work as hard as you can; make your wife and children work as hard as they can. Having done this, take what comfort you can in the thought that if you succeed in doing what you set out to do, and if most other farmers also succeed, you will have produced larger crops than can be sold at a profit and you will still be under the harrow. Nevertheless, the average farmer is forced by unhappy circumstance to adopt exactly that policy. It is not good for the farmer, not good for the farmer's wife and children, not good for the nation.

There are those, perhaps, alas, even among economists, who lean to the view that it is by following such a program as I have outlined that the farmer must work out his salvation. They say that during the depression of

¹ From the *Journal of Farm Economics* (January, 1924, Vol. VI, No. 1) with the special permission of H. A. Wallace, of *Wallaces' Farmer*, Iowa, son of the late Secretary Wallace. This article is reprinted in memory of, and as a tribute to, the splendid work done by Secretary Wallace.

the last three years the farmer found himself exactly where he ought to have known he would find himself. That such periods always follow wars, and that the farmer should have known that and set his house in order. That those farmers whose foresight was not as good as their hindsight must take the consequences, work hard, keep cheerful, and if they survive take comfort in the thought that the next time they will know in advance what is going to happen to them. Those who take this view will interpret my subject as meaning that the only workable national agricultural program is the satisfactory solution of the problems of farm management on the individual farm by the individual farmer in the light of such helpful information as he can get.

What is meant when we speak of a national agricultural program? Is it a program which most farmers are compelled to adopt by brutal force of economic laws and which therefore becomes national without effort or desire? Or is it a program carefully developed after taking due note of conditions, their causes and effects, and having in mind, first, the restoration of agriculture to a fairly prosperous condition, and, second, the maintenance of agriculture as the basis of our national life, and the farm home as the institution in which more than one-third of our young people are born and trained for citizenship? If we mean the latter then a national agricultural program must necessarily include more than the satisfactory solution of the problems of farm management.

If we should undertake to suggest a national agricultural program for the years 1924-25, it would include at least the following subjects as requiring attention:

First, good farming with all that those words imply; the use of good seed,

good cultural methods, good livestock, good care and feeding, economy of operation, and everything else that goes with really good farming.

Second, which is really included in the first, good farm management; wise selection of the crops to be grown, and of the livestock; adaptation to soil and climate; the best adjustment of acreage to conditions both on the farm and off; proper fitting of crops for market; and everything which ought to go with good farm management.

Third, making available to the farmer through Federal and state agencies information which he cannot secure for himself but which he needs to enable him to produce efficiently and intelligently and to market to the best advantage. For example, knowledge concerning the control of plant and animal diseases and insect pests, conditions at home and abroad which may influence demand for and prices of crops grown, such as probable production at home and in competing countries, business conditions, trade arrangements; in short, exactly the same kind of information the business man wants to know concerning probable markets for his products.

Fourth, how best to speed up the dissemination of knowledge concerning the new credit facilities provided by the Federal Government, not for the purpose of encouraging the farmer to go deeper in debt but to help him get out by securing lower interest rates for what he must borrow and by refunding his short term obligations for longer periods through which he may have a fair chance to work out.

Fifth, such reduction in freight rates as may be possible and still maintain good transportation service.

Sixth, how the government might effectively help the farmer bridge over this period of stress, which would include consideration of the various sug-

gestions for disposition of surplus over and above domestic requirements in such a way as to bring up the domestic price to more nearly its normal purchasing value.

Many other subjects might properly be included in the consideration of a two-year national agricultural program, but the foregoing are perhaps of most pressing importance, and with the exception of the last two will probably be included by common consent. Discussion of such a program would immediately center around any suggestion of government activity. One group for two years past has insistently demanded government action to the extent of fixing arbitrary prices upon important farm commodities. Another group has denounced such proposals as highly immoral and suggestive of paternalism and class legislation in the worst form. A third group recognizes the need of more equitable prices for farm production and concedes the propriety of government action, but wishes to be assured that any action taken will do more good than harm. This latter group sees the folly of arbitrary price-fixing but is disposed to favor any arrangement which might accomplish the same purpose without making worse a condition which is already bad enough.

It will be conceded, especially in a group of economists, that the unrestricted operation of economic laws in course of time will bring about better material conditions for those who farm. These laws are at work. They are driving people from the farms and will continue to do so until farm production is reduced to a point where the demand for food will compel a fair price. They are transferring the land from those who farm it to those who do not, increasing the number of non-resident land owners and the attending evils. They are compelling those farmers who

manage to hold on to follow methods of farming which deplete the fertility of the soil and permit their buildings, fences, and the productive plant to deteriorate at a rapid rate, thus using up capital investment. They are reducing the standard of living in the farm home, compelling hard labor by the farm mother, depriving the farm children of their rightful educational and social opportunities and creating in them a hatred of farm life which will lead them to leave the farm at the first opportunity. The free operation of economic laws is working all of these evils, and more.

If there had been no interference by the government with economic laws as they might affect the farmer during the war period; if there had been no arrest by the government of economic laws as they affect other groups, the industrial group, the transportation group, the labor group; then the case for the farmer could not be presented with such assurance. There was such interference. The farmer was deprived of many of the benefits which would have accrued to him from the free operation of economic laws during the war. Other groups have been protected by the government from the full sweep of economic laws. Once such a policy is adopted for the benefit of one group it must be applied fairly to all or we enter a period of economic and political disturbance, the result of which we can not foresee.

Confronted with national problems, agricultural, economic and political, of greater magnitude than ever before encountered, would that more economists might attune their ears to the Macedonian cry that comes up from the open country, give up for a time their detached seats of observation from which they view domestic and world activities with cold gray eyes and make records which may enable future

economists to explain what happened, and why it happened, and take an active interest in those who struggle with the definite purpose of helping them work out their problems, not alone for their benefit but for the benefit of the nation.

A national agricultural program worthy of the name must include consideration both of what is practical to do and what ought to be done to help agriculture bridge over the present depression, and what must be done to build a stable and thoroughly sound agriculture for the future.

We have come to the turn of the tide in our agriculture. The easily tillable land has been occupied. For a considerable time at least the farmer must look for his financial reward not in the increased value of his land upon which he can realize either by sale or lease, but by average annual profits from productive work. Before many years our consuming population will use as much as we now produce, and from that time on the problem will be to increase food production on a basis which will feed our people at a reasonable price and give the producer a fair return on his capital and a fair wage for his labor.

Any large increase in production must come from land already under cultivation. There are considerable areas of new land which can be brought under the plough, such as dry lands subject to irrigation, wet lands subject to drainage, and cutover lands from which the stumps may be cleared, but the reclamation of such lands cannot be considered until prices of farm products can be depended upon to yield fair returns on the capital and labor invested.

A national agricultural program looking toward the future therefore must include:

The strengthening of scientific re-

search in the fields of production, utilization and marketing.

The direction of land settlement with the view to wise use by the farmer rather than with a view to profitable exploitation by the promoter.

The survey of our land resources with the purpose of encouraging most efficient utilization.

The direction of reclamation as the demand for food justifies the bringing in of additional areas, having in mind the needs of the community or region, as well as of the country as a whole. Reclamation policies should grow out of public needs and agricultural possibilities and not out of the dreams of engineers or the ambitions of empire builders who wish to "develop the country" usually for the benefit of their own pocketbooks and at the expense of the hungry home seeker.

A consideration of the subject of land tenure with full recognition of the fact that as land increases in value an increasing percentage of it will be farmed by tenants, because they can better afford to pay rent at a very low rate on land value than to burden themselves with the load of debt which would be necessary to undertake to purchase. The tenant system is inevitable and public interest should be directed not toward a hopeless effort to do away with it, but toward an effort to set up a land lease to which the parties will be not only the landlord and the tenant but the land itself.

The development of methods of crop insurance by which hazards over which the farmer has no control, such as weather, may be distributed over large farm groups instead of being carried as now by the individual.

The development of a more efficient and economic system of marketing, which would necessarily include the grading and standardization of crops on the farm and the direction, in so far as

possible, of co-operative marketing efforts along sound business channels.

The consideration of transportation costs as they influence both production and the cost of marketing, and the reduction of such costs by readjustments in the production program or by shifting industries.

The study of transportation systems and methods with the hope of improving and extending them by greater use of highway and water routes.

These and other subjects of perhaps lesser importance must be considered in undertaking to prepare a national agri-

cultural program. It is assumed that it is or will be the national purpose that the nation shall be self-sustaining agriculturally and that what needs to be done will be done to accomplish this purpose.

If such should not be determined to be the national purpose, then instead of a national agricultural program we shall have a class or group program, in the working out of which there will be class and group warfare, economic and political, with resulting evils from which we may earnestly pray to be delivered.

The Farmer's Foreign Market

By ROBERT J. McFALL

Massachusetts Agricultural College

THE United States at one time was the leading exporter of agricultural products in the world, but long before the disturbances of war threw unusual burdens of production on the American farmer, other agricultural nations were taking our place in the foreign market. Leading thinkers predicted that the time was soon coming when America would cease to export a surplus of farm products. The remarkable power of our agriculture to expand with war-time demands tended to discredit this theory, but the recent reappearance in our own country of an excess of imports of food over exports in terms of value and the development for the first time of an actual net import in value of all agricultural products gives occasion for careful deliberation. At the same time our farmers who have a surplus of certain farm products for export are seriously disturbed over the appearance on the world's markets of an abundance of similar products sold by other countries at prices below our own costs of production.

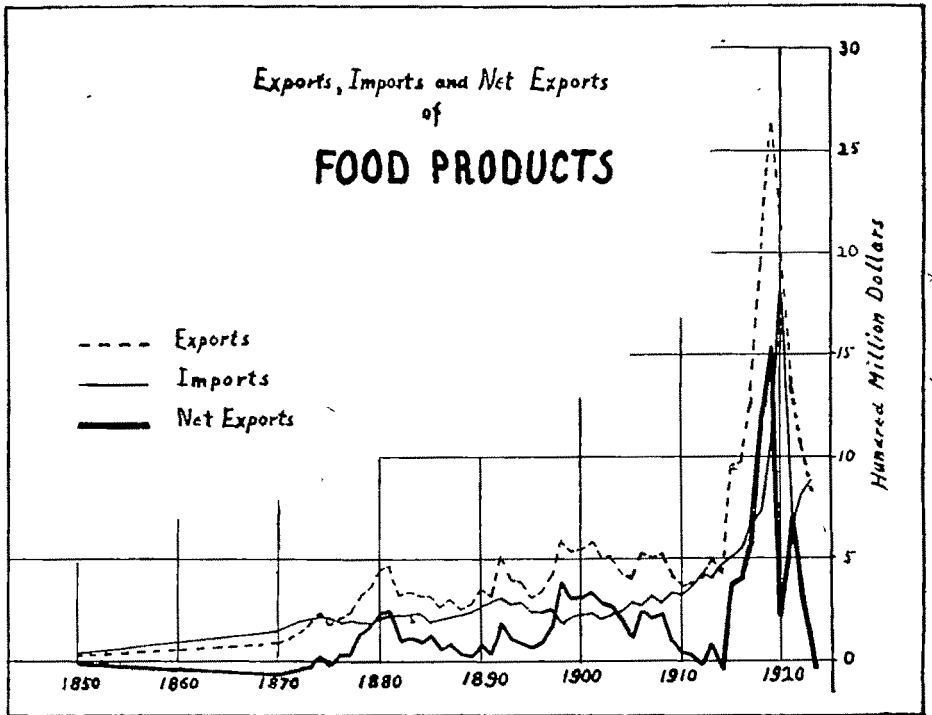
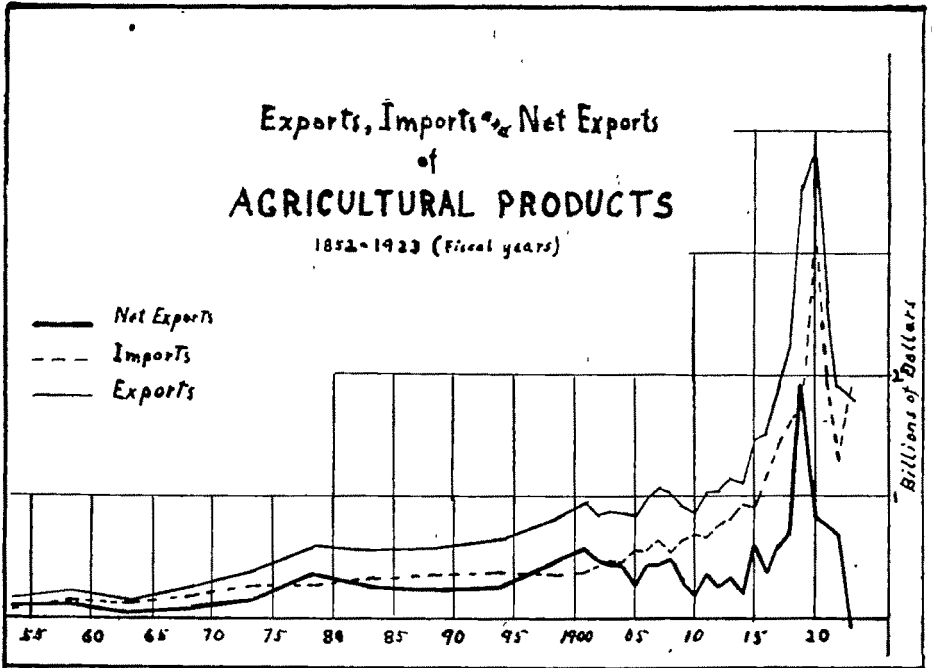
The trend of our foreign trade in this last half century is worthy of serious attention. There is too strong a tendency in current literature on the subject to fail to consider our agricultural imports and exports together. Intelligent conclusions regarding this foreign trade require the consideration of these two factors in contrast and in algebraic combination. The accompanying charts show the trends of imports, exports and their difference (net export or net import) for all agricultural products, as selected by the Department of Agriculture,¹ and for food products as classified by the Department of Com-

merce.² The most important items included among the agricultural products and not listed among the foods are cotton, silk, wool, hides and tobacco. These charts show the movements in terms of the dollar, which is the only common denominator. They are not deflated for the changing purchasing power of the dollar and fail, accordingly, to show trends of quantity. Since inflation appears almost equally in export and import values, the relation between these two is accurately depicted.

The domestic exports of farm products have presented a reasonably steady increase throughout the period under review. The upward trend, however, in the first decade and a half of the century was not as great as the price increase during that period. A decline in volume apparently was taking place. The post-war peak was caused partly by an increase in price, but an increase in volume amounting to about 32 per cent over 1900 took place also. Meanwhile, imports of farm products were also increasing, on the whole more rapidly than exports. In this also the peak was in 1919-20. A still larger part of this was due to quantity increase. The first year after the war presented such an excess of exports over imports as to break all previous records of net exports in both total value and quantity. The most impressive fact is that, leaving out of consideration the transition year 1919-20, the value of imports since the war has been maintained approximately at war levels, in spite of declining prices. As a result, in the year 1922-23, the value of agricultural imports exceeded the

² Foreign Commerce and Navigation of the United States.

¹ *Agriculture Yearbook*, 1923, page 1135.



exports by more than fifty million dollars; and this in a time when our farmers were in need of an extension of their foreign markets. Thus the resumption of the prewar trend of disappearing net exports is suddenly threatened.

The net exports of foodstuffs tell approximately the same story, except that the trends are still more striking. Strange to say, the foreign trade in foodstuffs in the seventies showed a deficit. Cotton and tobacco were pre-eminently the farm exports in the earlier days. Grain exports had been growing in importance for some time, but the seventies saw the real development of this trade³ and the beginning of export of refrigerated meats.⁴ They also witnessed the great expansion of the grain fields. From then on, headed by the grain and meat products of the virgin lands of the West, the foodstuffs overshadowed the other farm products in our exports. However, at the beginning of the century another change appeared. The high point of all pre-war history in food exports came in 1898 with a value of \$589,988,742, followed in 1901 with another large export amounting to \$582,999,518. From then on until the outbreak of war the total value of foodstuffs exported dwindled in spite of price increases. Meanwhile, the value of food imported more than doubled. In 1912 a net import amounting to \$7,721,075 appeared. The next year net exports were restored, but in 1914 the deficit reappeared with the larger figure of \$44,878,493. War conditions wiped out this trend for a time and in 1919 the net export amounted to more than a billion and a half. This situation, however, did not last, and the calendar year 1923 saw a deficit again, this time amounting to \$41,525,183. In the fiscal year 1923-

24 this figure had grown to \$150,571,996.⁵ This is the striking picture presented by our foreign trade statistics covering the last half century. That the trends are permanent is not assured. Other forces might, conceivably, reverse the trend as the war conditions reversed it temporarily.

THE PRESENT FOREIGN MARKET

The most important agricultural export from the United States in the year 1923 was cotton with a value of unmanufactured fibre amounting to \$807,102,507. In the same year cotton manufactures to the value of \$138,000,106 were exported. Cotton held first place also in 1922, but in the fiscal year 1920-21 the value of the raw cotton export, amounting to \$600,186,000, was exceeded by the value of grain and its products, which passed the billion dollar mark.⁶ Grains and their products, as a class, took the second rank in 1923 with a total of \$311,302,358 in value, after a continuous decline in value since 1920. The nearest competitor of these classes was the complete class of "animals and animal products, except wool and hair," which includes fish in the customs classification. This class of animal products accounted for \$466,657,458 in the exports of 1923. Among the animal products the chief representatives were meats, valued at \$149,967,743; animal and fish oils, valued at \$158,415,723; leather, valued at \$42,883,952; and dairy products, valued at \$27,836,395. Tobacco valued at \$152,303,061; fruits valued at \$67,450,907; and sugar valued at \$28,933,391; in addition, many miscellaneous products were also exported in 1923.⁷

³ Monthly Summary of Foreign Commerce of the United States, Part II, June, 1924.

⁶ Monthly Summary of Foreign Commerce of the United States, Part I, December, 1923.

⁷ *Agriculture Yearbook*, 1923, pp. 1105-08.

³ *Agriculture Yearbook*, 1923, p. 1113.

⁴ Critchell, J. T. and Raymond J.: *A History of the Frozen Meat Trade*.

Against these exports were imports in all these specified classes and many others. It may seem strange that we import the same classes of products as those which we export. We produce about 18 per cent of the sugar we consume.⁸ The remainder of our sugar consumption heads the list of our food imports with a value of \$380,179,758 in 1923. Wool, likewise, is imported to the extent of somewhat more than one-third of our domestic requirements.⁹ This amounted to \$129,710,711 in value in 1923. Cotton is imported, even though this country exports a large surplus of this fibre. The reason for this is partially that the domestic needs require a certain amount of an especially long staple which is grown here only in limited quantities. Cotton imports to the value of \$49,442,868 came into the country in 1923. Similarly, wheat amounting to 19,501,706 bushels was imported, mainly from Canada, to make up for a deficiency of hard spring wheat which has special qualities making it more valuable for bread-making than the softer wheats of which the United States has a surplus. Largely as a consequence, the United States spent \$24,061,263 for "grains and preparations" in 1923. Tobacco to the value of \$66,855,897, and fruits to the value of \$44,269,231 were also imported in the face of exports. Here bananas, to the value of \$19,738,508, did not compete with any important domestic production. Hides and skins amounted in value to \$118,917,790; dairy products to \$40,854,903; vegetable oils to \$64,517,683; oil seeds to \$68,581,632; nuts to \$25,259,295; and vegetables and preparations to \$25,354,182. In addition to these imports which are largely competitive, raw silk was imported valued at \$391,942,417; coffee at \$189,993,330; cocoa

and cacao beans at \$33,799,019; tea at \$29,928,722; and spices at \$13,639,485. Vegetable fibres are also imported very heavily.¹⁰ The Department of Agriculture estimates that about forty-five per cent of our imports do not compete directly with our own farm production.¹⁰

It is thus apparent that the larger part of the products which we export are subject to the competition of imports, although most of our heavy imports are products of tropical or oriental countries. In the foreign countries our exports are subject, of course, to the full competitive force of the production of other countries.

CONDITIONS IN PURCHASING COUNTRIES

The foreign market for the farm products of the United States spreads over many countries. Some of these countries are themselves large surplus exporters of food and other agricultural products. The chief purchasers, however, are those nations which, being highly industrialized, have a surplus of manufactured products and a deficit of the products of the farm. In prewar days, the United Kingdom was the greatest foreign customer for our farmers. That country took 37.47 per cent, Germany 20.34 per cent, France 8.11 per cent, Holland 4.68 per cent, Belgium 3.01 per cent, and other European countries 10.29 per cent of our farm exports. Thus Europe took 83.9 per cent of all our agricultural shipments in the prewar period of 1910 to 1914. Nevertheless, this export trade was gradually becoming less concentrated. Europe as a whole and the United Kingdom were taking a smaller proportion, while Germany and France were taking an increasing share.¹¹

⁸ See p. 131.

¹⁰ *Crops and Markets*, September 13, 1924; p. 176.

¹¹ Strong, H. M.: *Distribution of Agricultural Exports from the United States*, Department of Commerce Trade Information Bulletin No. 177.

⁸ *Ibid.*, 1923, p. 846.

⁹ *Ibid.*, 1923, p. 1002.

Japan must also be counted among the food deficiency nations. She is now a heavy importer of rice, a material part of which comes from the United States.¹²

The Western European nations, as a group, consume more agricultural products than they produce on their own farms. This is not only natural, but inevitable, since an important export trade in manufactured products necessitates a corresponding import trade. Farm products, and other raw materials are unfailingly among the commodities for which such nations exchange the products of their industrial and commercial efforts. England, Germany and France, and to a certain extent some other European nations, not only were aggressively marketing their manufactured products in other countries in prewar days, but carried on extensive world shipping and international finance, and had important and profitable investments in foreign countries. In such circumstances an import trade in farm products, as payment for these goods and services, is unavoidable as the economic world is organized. Moreover, other nations were better prepared than they to expand their food production.

In the years when war-time stringencies directed popular attention more carefully to the food supply of these deficiency nations, the ablest scientists of the leading countries made careful estimates of the food production, consumption, imports, and actual requirements of their nations. The first such study was that for Germany, made by the Eltzbacher Committee.¹³ Following that, Sir Henry Thompson

made a preliminary survey for the United Kingdom.¹⁴ A committee of the Royal Society thereupon worked out more careful estimates¹⁵ and since the war Sir Thomas Middleton has revised these still further, making careful estimates of the domestic animal production which was based upon imported feed.¹⁶ The Interallied Scientific Food Commission also made available comparable data for France and Italy.¹⁷

The final estimates for the United Kingdom indicate that in the prewar half decade only 34 per cent of the food supply came from the home farms and one per cent from the home fisheries.¹⁸ France and Italy were more nearly self-sufficing. France is estimated to have produced 91 per cent and Italy a little over 92 per cent of its own food consumption before the war.¹⁷ Germany also produced the major portion of her own requirements. The Eltzbacher Committee estimated the foreign contribution in calories at 20 per cent of the prewar consumption.¹³

In prewar days the United Kingdom produced approximately 60 per cent of its meat; a little more than one-fifth of its grain; practically all of its fresh milk and cream, including about 90 per cent of all its dairy products; about three-quarters of its fruits and vegetables and less than one-third of its other foods.¹⁷ This latter class includes sugar, of which that country is, practically speaking, not a producer. To maintain this showing in livestock

¹⁴ Thompson, W. H.: *The Food Value of Great Britain's Food Supply*; *Econ. Proc.*, Royal Dublin Society, March, 1916.

¹⁵ *The Food Supply of the United Kingdom*. H. M. Stationery Office, London (Cd. 8421).

¹⁶ Middleton, T. H.: *Food Production in War*.

¹⁷ *Les Ressources et les Besoins Alimentaires des Pays Alliés*, Commission Scientifique Interalliée au Ravitaillement.

¹⁸ Middleton, T. H.: *Food Production in War*, p. 91.

¹² Batchelder, C. C.: *Economic Pressure as a Cause of the Revolt of the Asiatic People Against Occidental Exploitation*; *Annals*, March, 1924, p. 264.

¹³ Eltzbacher, Paul, et al.: *Die Deutsche Volksernährung und der englische Aushungerungsplan*.

products, a heavy import of feed was necessary. Of the feed concentrates used by the British livestock before the war, somewhat less than two-thirds was imported.¹⁹

France, as we have seen, was more nearly self-supporting. About 87 per cent of her grain, almost all her meats, slightly more than her consumption of dairy products, nearly all her fruits and vegetables and more than two-thirds of her other food were raised at home.¹⁷ The production of animal products depended to a certain extent upon additional imported feeds.

Italy made about the same showing as France with a slightly smaller proportion of home production in grains, but a surplus of fruits and vegetables, and with practically a self-sufficiency in all other foods.¹⁷

Germany credited 10 per cent of her requirements in grains and potatoes to imports. Four per cent of her green vegetables, 30 per cent of her fruit, one-third of her meats and animal fats, 86 per cent of her vegetable fats, 58 per cent of her dairy products and 41 per cent of her eggs were also imported or based upon foreign raw materials. At the same time one-third of her sugar production was exported. In these figures an ample allowance is made for imported fodder.²⁰

This is the picture of the prewar food requirements of the chief nations of Western Europe. At the same time Denmark, Holland and Belgium, and several of the other small nations were importing food and fodder, although some nations, as Denmark, were important exporters of foodstuffs. All the industrial countries of Europe as well as Canada were using our cotton and tobacco, and Italy and France as well as Japan and China were shipping us raw silk.

¹⁹ *Ibid.*, p. 37.

²⁰ Eltzacher, *Op. Cit.*, pp. 39-75.

RESULTS OF WAR

Great disturbances, of course, have taken place since the war. Our starting point today is not the prewar situation, nor is this our goal. Nevertheless, it probably illustrates more truly than present conditions what the underlying economic forces are and in this way is a guide to the future.

There is a temptation, when social and economic conditions are changed for a time, to become pessimistic and to feel that such disturbed conditions may be permanent. Europe has been a long time recovering. Shall we conclude that the development of Europe in the century before the war was a cyclical affair; that the war marked the reversal of the cycle and that she is now headed for retrogression, or at best a slackening development? Her population growth and increase in wealth have been enormous in the last few generations. Is the future to see the end of this movement? Future history alone can answer this question finally, but our answer today must be that there is absolutely no proof that such a reversal of development is actually taking place more than temporarily. France went through a still more serious upheaval more than a century ago, and subsequent history shows that her progress was far from being stopped permanently. Social and economic upheavals often let loose the forces which are struggling for development and, after the temporary disturbances have passed, the development proceeds more surely than ever.

The war disturbances let loose a flood of neo-malthusian utterances which would fain lead us to believe that man's further progress will soon be checked by a shortage of food. If this school of thought is correct in its forecast of the future, there would seem little question but that the days of growth of

industrialized Western Europe were numbered; in fact, the beginning of the end is already heralded. Those of our farmers who took these theories seriously and based land speculations on their soundness are suffering today. Strange to say, these theories in the past have seemed to attain most popularity in the periods just before new social expansions. They are based largely upon the idea that increase in food production comes only with greater expenditure of human effort per unit of output and proportionate expansion of the farm area. There is so much truth in the contentions of these writers that their conclusions sound plausible. However, they do not place before us the real possibilities of increase from better agricultural technique. The claim is that such advance will be at increasing costs per unit of output. The answer to this claim can only be to point to the facts, which show that, throughout this last century as a whole, agricultural expansion has not caused increasing costs of food, that a decreasing proportion of human population feeds the expanding total population and that the masses of the population are progressively better fed and clothed. The time may come when this will change. In fact, temporary changes have already taken place. However, there were as great reasons to forecast the imminency of fundamental change a century ago as today.

We are inclined to hazard a guess that, when time has given us an opportunity for the proper perspective, the present European debacle will appear as a temporary disturbance in the upward trend of social and economic development. The loss of foreign investments and of some of the grand old social traditions may also be a blessing in disguise for the masses of humanity. We shall, accordingly, base our further assumptions upon

such a theory of the ultimate restoration of European development. The prewar economic status will, probably, never be restored in detail, but this status affords the best available picture of the results of economic forces when they were in free operation. Fundamentally these forces are now quite comparable to what they were then. The population is about the same in numbers and economic wants and only slightly changed in productive skill and ideals. The natural resources are not changed appreciably. The climate is the same. National boundaries are changed somewhat. This will cause some changes in national economy, but no change in that of the group of nations, excepting as new restraints are put upon intra-European commerce. The economic machine is badly smashed, but almost all the parts are there and the skill is still existent to put the machine in working order. The great thing wanting has been social, not economic; a lack of confidence in the future. When confidence is restored, the economic machine will be rebuilt. The prospects today are for a slow but sure restoration of confidence.

If the machine is put into smooth operation again we shall see, not a return to the prewar status, but to approximately the prewar trend with a changed base from which to start. The starting point is the status of the present. The status of the past is, however, the best aid toward estimating the underlying forces.

PRESENT STATUS OF EUROPE COMPARED WITH PREWAR CONDITIONS

Western Europe has more nearly recovered her agricultural production than her industrial activity. Taking Europe as a whole, however, including Russia and the middle eastern countries, it is a question if agriculture has not been set back further than industry.

Unfortunately, it is impossible to arrive at any thoroughly satisfactory estimate of the present condition of either agriculture or industry in some of the countries. Reasonably satisfactory data exist, however, showing the changes in production of crops and number of livestock as an index of agricultural activity and coal production and unemployment as indexes of industrial activity.

The production of wheat in Europe as a whole makes a remarkable showing as compared with that of prewar days. Countries such as Germany and Russia, which have been seriously disorganized, show great reduction in output. However, increases have taken place in some other countries. The U. S. Department of Agriculture estimates a production of wheat for the chief European countries in 1923 of 1,282,966,000 bushels as compared with 1,434,008,000 for the average of the five years before the war.²¹ Beet sugar production is estimated by the same authority at 7,644,370 tons in the prewar half decade and 5,255,947 in 1923.²² The estimate of the prewar cattle population is 129,560,000 and that based upon the latest records (scattered from 1920 to 1923) is 122,818,000.²³ No information is available as to the decreased output in meat and milk per thousand of these animals, and this matter is of considerable consequence.²⁴ Just before the war Great Britain, Germany, France, Belgium and Denmark were credited with 37,810,000 hogs. Today these countries have about 29,249,000.²⁵

²¹ *Foreign Crops and Markets* (U. S. D. A.) March 19, 1924, p. 234.

²² *Ibid.*, April 2, 1924, p. 284.

²³ *Ibid.*, June 18, 1924, p. 536.

²⁴ *Merx. P.*: The Food Supply of Germany; *Manchester Guardian Commercial*, Reconstruction No. 6, p. 359. Also¹⁷, p. 133.

²⁵ *Foreign Crops and Markets* (U. S. D. A.) July 30, 1924, p. 110.

It is impossible to construct from these data a satisfactory index of agricultural activity, but they do indicate that for these items the production has declined by 11 per cent for wheat, 31 per cent for sugar, at least 5 per cent for cattle and about 23 per cent for hogs.

The production of coal is probably as good an index as any that exists to show the rate of industrial activity in Europe. The chief industrial nations, Great Britain, Germany, France, Czechoslovakia, Poland and Holland, produced about 7 per cent less coal, including lignite, in 1922 than in 1913. In 1923, owing largely to the Ruhr troubles, the deficit amounted to about 13 per cent. This deficit varied from country to country. The index of production, based upon 1913 activity, stood at 97 in Great Britain, 62 in Germany (lignite included), 117 for France, 100 for Belgium, and 285 for Holland.²⁶

The index of employment is also a valuable sidelight on the rate of industrial output. This for 1923, as based upon 1913, stood at 90-92 for Great Britain, 92 for Germany, 100 for Belgium, 91 for Holland, Sweden and Norway, and 95 for Denmark.²⁷

One of the best indexes of the business activity of Great Britain is said to be the export of manufactured articles. In 1923 such exports amounted in pounds sterling to 141 per cent of those in 1913.²⁸ Rectifying this figure for the changes in price by the use of the Federal Reserve Board's index number for the price of British export goods, we find that, on the basis of quantity, British exports of manufactured goods in 1923 were only 85 per cent as great as in 1913.

The rate of industrial recovery of

²⁶ *Survey of Current Business* (U. S. D. C.) August, 1924, pp. 226, 227.

²⁷ *Ibid.*, August, 1924, p. 230.

²⁸ *Ibid.*, August, 1924, p. 224.

Europe is fundamentally the best measure of her ability to pay for our farm products. The products of her industrial and commercial life are ultimately the basis for her purchases in the outside world.

Europe's consumption of foodstuffs was increasing in the half century before the war. This was due to increased consumption per capita as well as to an expansion of the population. The fact of expansion of the population is so well known that it requires only passing comment, although it has been an extremely important factor. The increase in per capita consumption is not so well known, and consequently the subject requires more comment.

This increase in the per capita food consumption was more marked in the last century than in the first decade of this century. The annual production of meat in Germany is estimated by German authorities to have risen consistently all through the last century.¹³ In 1816 it was 13.6 Kg per capita. In 1907 it was 46.2 Kg, and before the war imports increased the amount available for consumption by 10 per cent. Presumably there was no such important import trade a century ago. In Britain the per capita consumption of meat of all classes was estimated at 75 pounds a year in the middle of the last century.¹⁴ Just before the war it was about 129 pounds.¹⁵

In France the consumption of meat also increased greatly in the half century before the war. In spite of the fact that the cattle population increased only about 10 per cent and the number of beeves actually decreased, the increased weight of the animals

and their earlier slaughtering age was so marked that the beef and veal production more than doubled in the fifty years leading up to 1913.¹⁶ During this period the French foreign trade in meats was too small to cause much difference between production and consumption.¹⁷ Hence it is safe to conclude that the beef and veal consumption of France doubled in the same time. It is estimated that further increases have taken place in France since the war.¹⁸ In most other European countries, notably Germany,¹⁹ decreased consumption has been the rule since the war, but a decided tendency exists to make up the deficiencies.

In the latter part of the last century consumption of wheat and barley also increased in various European countries.²⁰ Scattering evidence indicates also that the consumption of miscellaneous foods increased and that more textiles were used.²¹

These increases came with increased prosperity among the masses. In the half century before the war real wages were advancing in England and also on the Continent.²² The advance was checked at the first of this century, and at the same time the increase in consumption was slackened. The evidence available from many sources

¹³ de Lapparent, M. H.: *Elevage des Bêtes Bovines* (1915).

¹⁴ Lucas, J. E.: *Le Marché de la Viande en France* (1917).

¹⁵ *Foreign Crops and Markets* (U. S. D. A.) June 18, 1924, p. 546.

¹⁶ Hess, R. H.: *The German Food Situation and Import Requirements of Breadstuffs, Meats and Fats for 1924* (U. S. D. A.).

¹⁷ Taylor, A. E.: *The European Situation as Affecting Demand for Wheat*; address before National Wheat Conference, Chicago, June, 1923.

¹⁸ Nourse, E. G.: *American Agriculture and the European Market*, p. 263.

¹⁹ Kitchin, Joseph: *Trade Cycles Chart, The Times*. London, January 28, 1921.

Mahaim, E.: *Changes in Wages and Real Wages in Belgium, Journal of the Royal Statistical Society*, Sept., 1904, pp. 430-38.

¹³ See p. 133.

¹⁴ Critchell, J. T. and Raymond J.: *A History of the Frozen Meat Trade*, p. 2.

¹⁵ *Foreign Crops and Markets* (U. S. D. A.) January 2, 1924, p. 546.

indicates that food consumption in England and France has largely recovered from war shortage, but that in Germany it is very much below normal.

What the future may bring forth in changes in rates of consumption is not easy to determine. It is evident that the increased consumption was very much in order during periods when industrial income was rising more rapidly than agricultural prices. This manifested itself strikingly in the last half of the last century. In the half generation before the war when agricultural prices were recovering from the results of the over-expansion onto new lands, this trend of higher real wages and increased consumption was retarded but not as definitely reversed as were farm prices. Apparently, the comparative increase of farm prices was a return from a temporary disturbance to the more normal balance between such prices and prices for industrial goods, and the fundamental trends for each set of prices proceed approximately together.

Taking a view of the past century with its ups and downs, the masses had increased real wages and manifested a strong tendency toward increased consumption, especially of the choicer foods. It seems logical to conclude that the tendency toward higher standards of consumption will be resumed as soon as possible, but probably with a milder degree of increase. It would seem that the well-to-do classes were already amply nourished, but that certain large elements in the population are still undernourished.³⁸

It should be noted before passing that Europe's share in our exports of farm products for the three years 1920-22 was 77.17 per cent as compared with the 83.9 per cent previously noted for 1910-14. The decreases came largely in exports to Britain and Ger-

many. The United Kingdom took 32.93 per cent in the later period against 37.47 per cent in the former. Germany's share fell from 20.34 per cent to 10.45 per cent.¹¹ In view of the greatly decreased purchasing power of Europe, this limited decrease in the proportion taken from our agricultural exports is interesting. Europe was not in need of less farm products, but was less able to pay. As a result, our surplus being insistent, she maintained the amounts purchased quite amazingly, but cut the prices.

This question of the purchasing power of Europe is so complex and so inextricably bound up with the relative selling positions of other surplus producers of farm products and with the matter of our balance of trade and Europe's debts to us, that its discussion must be reserved until later.

CONDITIONS IN OTHER PRODUCING COUNTRIES

It will be impossible, within limited space, to discuss fully the abilities of other surplus producers of farm products to compete with us in our foreign market. A brief discussion, however, will serve to present the most important elements in this situation.

Eastern Europe was of great importance to Central Europe as a source of foodstuffs and other farm products before the war. Germany imported these products heavily from Russia. Austria proper depended largely upon those parts of the dual monarchy now established as separate nations. Russia and southeastern countries of Europe were also heavy exporters of grain to other countries before the war. In the half-decade 1910-14, out of a total annual export of wheat from all the chief surplus as well as deficiency nations amounting to 805,578,000 bushels, Russia exported 164,862,000 bush-

³⁸ Starling, E. H.: *The Feeding of Nations* (1919).

¹¹ See p. 132.

els, Roumania 54,680,000, Hungary 49,116,000 and Bulgaria 11,182,000.³⁹

Over one-third of the international wheat trade of the world came from these countries of Eastern Europe. In addition, many other agricultural products were exported, notably butter, eggs, hides, coarse grains, flax, hogs and poultry from Russia⁴⁰ and corn and other coarse grains from the Danubian countries. The whole economic life of these countries is disorganized today. How long it will take for it to be reorganized is a matter of conjecture. The exports from the Danubian countries have been cut down drastically;⁴¹ from Russia they totally disappeared and are now attempting to show themselves again in feeble fashion. During and since the various revolutions the system of land tenure has undergone notable changes away from large holdings under central management toward small individual holdings.⁴² Opinions differ as to the future effect of this on the exportable surpluses. In Russia the change in land ownership had already gone far before the revolution. The revolution has increased the peasant holdings from 80 to 96.8 per cent of the total available.⁴³ For the Danubian countries the statement is made:

During the last four years the peasants have made great efforts for the restoration of agriculture. They set no limit to their working time, work 18 hours a day in summer, and their effort is made noiselessly and almost instinctively.⁴⁴

It is generally claimed that the change will tend toward smaller atten-

tion being paid to grain crops for export and more to the raising of livestock. It must be remembered that the state of education and the standard of living in these countries are not of the highest, consequently developments are likely to be slow. One writer points out that even under the old organization Russia was much slower than other countries to develop her trade.⁴⁵ The natural resources are present in this eastern plain of Europe which extends, roughly speaking, over the Danubian countries and Russia. These countries were the granary of civilization before the dawn of history, and will, to a notable degree, be so again. The social elements involved stand in the way of rapid progress. It is possible, however, that new types of social and economic organization will appear with or without the help of Germans and other outsiders, which will cause a new development in this section of the world. The recovery of the prewar supplies is the maximum that the outside world can reasonably expect, however, for a considerable number of years and even this is slow in appearing.

Asia makes some important contributions of agricultural products to the outside world. These are largely confined to sugar from Java, the Philippines and Formosa; cotton and wheat from India; rice from India, Indo-China, Siam and Korea; small amounts of meat from Indo-China and Shantung; and eggs from China; excepting products which do not compete with our agriculture. These latter products, including vegetable fibres, carpet wool, tea, coffee, spices and rubber, are very important exports.

The warmer countries in Asia exporting products which compete with ours are mostly densely populated and, as a rule, more likely to turn into importers than to become formicable

³⁹ *Agriculture Yearbook*, 1928, p. 623.

⁴⁰ Anderson, B. M., Jr., Germany and Russia, *Chase Econ. Bulletin* II, 2.

⁴¹ *Manchester Guardian Commercial*, Reconstruction No. 14, p. 831.

⁴² *Ibid*, Reconstruction No. 6.

⁴³ *Ibid*, Reconstruction No. 6, p. 377.

⁴⁴ *Ibid*, Reconstruction No. 14, p. 831.

competitors in the export trade. There is said, however, to be large room for expansion of production of sugar and other tropical products on the islands and, eventually, of products of the temperate zone from Manchuria and Siberia. These latter countries threaten no immediate competition of importance, although Siberia had an important butter export before the war.⁴⁵ Asia, under present conditions, will probably not be an important low cost competitor within the near future.

Africa has great potentialities as a producer. France is already getting valuable contributions of agricultural products from her African colonies, and England from hers and Egypt. Developments in Africa have been slow, and will probably not be pushed until higher relative prices overcome the inertia which stands in the way of the real development of that continent. When the inertia is overcome, however, the more temperate zones and the mild plateaus in more tropical zones may well become low cost producers. The natural resources are said to be present and there is an abundance of labor comparable to our southern labor, if it can be induced to work. There is some immediate competition in meats, wool, grain and cotton.

South America is now a very keen competitor in our market for farm produce and the opportunities there for expansion on to new low cost land are still very large.⁴⁶ The Argentine is the most highly developed section as yet, for its climate is ideal for farming and its agricultural resources are similar to those of our prairie. For years its wheat, beef and corn have been driving ours off the European market and its beef and corn at times invade our domestic market. Her

acreage of wheat and corn developed rapidly until about 1910 and of oats and alfalfa right through the war. The livestock census of 1914 indicated a decrease in cattle, but the census is considered to be inaccurate, and the exports of beef developed rapidly until the shipping shortage in the last part of the war caused a decline.⁴⁷ The war checked the exports for a time, but in these last few years the Argentine has recovered from us her place on the European market.⁴⁸ Agriculture in that country, in spite of its present development, has abundant room for expansion while still exploiting the virgin resources of the soil. It is estimated that wheat can be produced on an area ten times that of the present wheat fields.⁴⁹ Moreover, her supplies of fuel are too limited to form the basis for any great industrial expansion of her own. The Argentine also is successful in using the immigrants from Southern Europe in her agriculture and the potential supply of these at present is large.⁴⁹

There are many other parts of South America which have already entered the market and great expansion of production is possible eventually. Uruguay and southern Brazil are developing quite rapidly, but have not yet shown their real capacity. Southern Brazil, as well as some other parts of South America, is sufficiently high in altitude to offset in some measure the nearness to the Equator. Not only are sub-tropical products being raised, but competition is being threatened for our beef⁴⁶ and cotton exports.⁵³ Much of South America

⁴⁷ *The Economic Development of the Argentine Republic: the Last Fifty Years*, published by Ernesto Tornquist & Co., Ltd., Buenos Ayres, 1919.

⁴⁸ Nourse, E. G.: *Op. Cit.* p. 210, 211.

⁴⁹ *Foreign Crops and Markets* (U. S. D. A.) January 16, 1924, p. 57.

⁵⁰ *Manchester Guardian Commercial*, American Cotton Number.

⁴⁵ Reports of the Siberian co-operative associations.

⁴⁶ Pearce, A. W.: *The World's Meat Future*.

is like Africa in its potentialities, in that it will not be used largely until lands in the older countries are better cultivated.

Australia and New Zealand are our keen competitors on the world market. New Zealand is small and fairly well developed, but still has abundant resources for expanding her production of grain, beef, mutton, lamb, wool and dairy products, which she sells largely to England and in smaller degree to us. Australia has enormous area, but much of it is almost desert and the development of her exports has been very irregular on account of disastrous drought. Nevertheless, Australia has been expanding her farm net exports for years, while ours have been contracting and today her trade in similar products to those exported from New Zealand is very important. She also produces some cotton⁵¹ and sugar⁵² in her more tropical section. Australia is already a great producer and will expand her production, although probably slowly.

Canada offers very real competition to our farmers in some lines. The fruit and dairy products from the east, and the grain, livestock and dairy products from the west compete with the products of our farmers both at home and abroad. Western Canada is still in the "mining" stage of agriculture and, as a consequence, her current costs of production are low.⁵³ The development of the West has been rapid in these last fifteen years and this development is not due to the war, but to the efforts in railway building and land settlement already put forth before war was in sight. The development is permanent and can be pushed very much further; how far is a matter

of dispute. It is safe to say, however, that with the available land resources and the potential immigration from Great Britain as soon as farming gives greater promise of profit, Canada will expand her output much further and that without materially increasing the unit cost of production.

The production of the farms of Western Europe itself offers us the greatest competition of all in the markets of those countries. Even in Britain, the gross output of the farms is much greater than the thirty-four per cent of the consumption, and agriculture, according to the prewar census, was the greatest industry in the country in terms both of net output and people employed.⁵⁴ It is a common assumption that England has been driven to food importation on account of scarcity of land at home. This assumption is without foundation. England turned to the importation of food because it was cheaper to buy the food than to raise it.⁵⁵ If the primary influence had been a greater expansion of demand than her own farms could supply, the result would have been increasing prosperity for domestic agriculture. The very opposite took place. Three and a half million acres of land went out of cultivation in England during the half century before the war.⁵⁶ When confronted with the products of what is termed the "mining of virgin soil" in new lands, the British farmer turned in distress from one effort to another⁵⁷ without much avail until a new balance was struck at the beginning of this century.⁵⁸ Leading British authorities agree that the agricultural possibilities

⁵⁴ Oxford Survey of the British Empire, British Isles, p. 218.

⁵⁵ Prothero, R. E.: *English Farming, Past and Present*, pp. 374-392.

⁵⁶ Hall, A. D.: *Agriculture after the War*.

⁵⁷ MacDonald, James: *Food from the Far West* (1878) p. ix-xvi.

⁵¹ *Agriculture Year-book*, 1923, p. 804.

⁵² *Ibid*, 1923, p. 851.

⁵³ U. S. Tariff Commission; *Wheat and Wheat Products*, 1924.

of their country permit of a much greater home production of food.⁵⁸ One prominent authority claims, very optimistically, that, if all the farmers would duplicate the practices of those who really farm their land carefully, the nation would be self-supporting in food. He also shows that the farmers who follow such careful practices made good profits in contrast to the unhappy results of the more common types of farming.⁵⁹ Another more conservative writer shows that more intensive farming methods would not only give much greater production but would also be more profitable to the farmers over a large enough number of years to secure average conditions.⁶⁰

As we have already shown, the continental countries are more nearly independent of the outside for their foodstuffs. France supplied herself with about ninety per cent of her food requirements, and did this with but indifferent efforts, before the war.⁶¹ Germany, which was the second greatest importer of foodstuffs, purchased only twenty per cent of her consumption before the war and her true requirements are said to have been over-supplied.⁶² Moreover, there is no reason to suppose that even the German farmer before the war had exhausted nearly all the possibilities of agricultural technique known today; and greater advances seem still to be discoverable.⁶³

⁵⁸ Hall, A. D.: *Agriculture after the War*.

Middleton, T. H.: *Food Production in War*, etc.

Fielding, Charles: (*Agricola*); *Food*, etc.

⁵⁹ Fielding, Charles: (*Agricola*); *Food*, pp. 89-94.

⁶⁰ Middleton, T. H.: *Food Production in War*.

⁶¹ Morel, Compere: *French Agriculture Since the War: Manchester Guardian Commercial*, Reconstruction No. 6, p. 358 (August 17, 1922).

⁶² Starling, E. H.: *The Food Supply of Germany during the War; Journal of the Royal Statistical Society* March, 1920, p. 225.

⁶³ Fielding, Charles: *Food*, p. 108.

The types of agriculture to which we are coming with greater development and to which Europe must come will be more alike than either will resemble the production in the newer countries. This should make our farming still more competitive with theirs. Europe has cheap labor and plenty of it. The use of machinery is not so highly developed as in this country. Increase of competition in these markets from their own farms will depend largely upon the intelligent effort expended on improving the farming technique and pushing farming operations. The application of such effort, in turn, will depend largely upon the degree to which it will continue to pay these countries to devote their energies to industry and commerce, rather than to agriculture. The immediate prospect is that their best efforts will be devoted to the restoration of their commercial activities, particularly with countries producing a surplus of agricultural products. This situation rather than lack of facilities for home production of food will be the limiting factor in the development of European agriculture.

THE STATUS OF OUR TRADE IN THE MORE IMPORTANT PRODUCTS

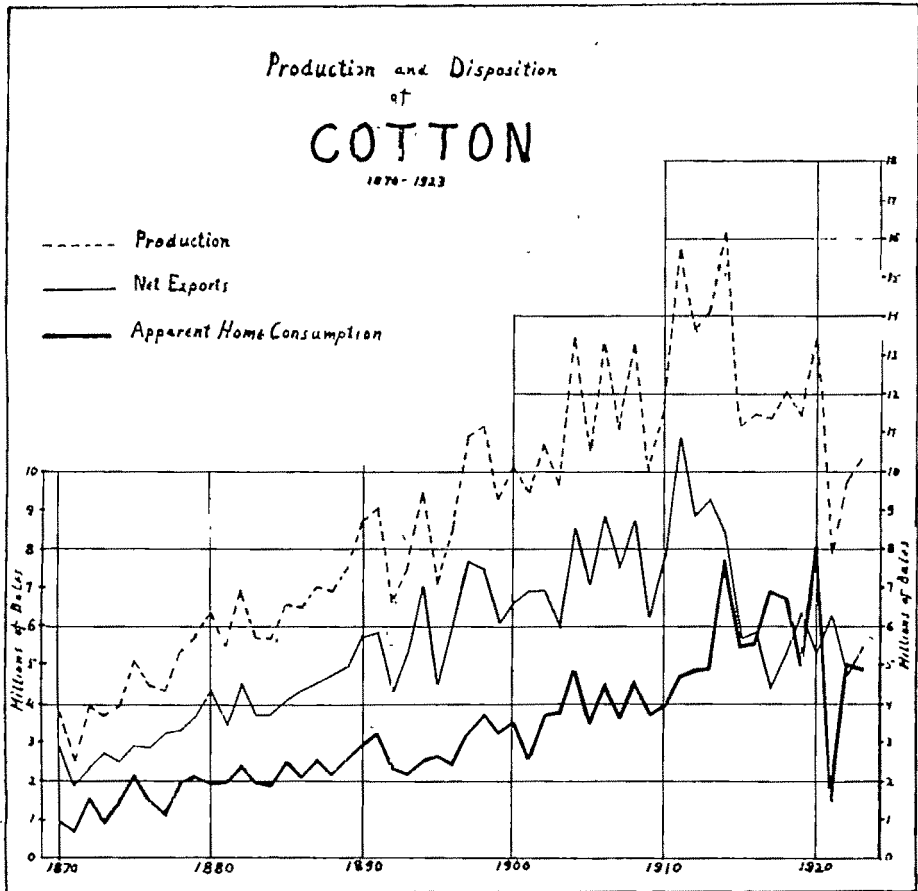
A brief presentation of the situation in the trade in the chief commodities among our agricultural exports should be helpful.

Cotton, which is our banner export product, has always found its largest foreign market in England. Nevertheless, in the latter part of the last century, when the total exports of cotton were increasing very rapidly, Germany greatly increased her demands for this fibre and France and Italy also became important customers. In 1923, the United Kingdom took 1,580,916 bales, Germany 1,011,614

bales, Japan 674,008 bales, France 653,077 bales, Italy 533,811 bales, Canada 193,028 bales, Spain 171,529 bales, and Belgium 161,062 bales out of a total export of 5,279,165 bales.⁶

production,⁶⁵ as portrayed in the accompanying chart.

In the year 1922-23 the United States produced 9,761,817 bales of cotton out of a world total crop esti-



The export of cotton in these last few years has been affected by our short crops as well as by the slackened foreign demand. Our production has been seriously curtailed by the ravages of the boll weevil and recently has been threatened by the pink boll worm, which is a new pest for this country.⁶⁴ Meanwhile our consumption has been increasing more rapidly than our

mated at 18,705,000 bales. In 1909-13 the United States production was 13,033,235 out of 23,580,000 bales.⁶⁶ Doubtless, a normal world crop in these last few years would have been disastrous to the producers, but it appears also to be true that the high prices due to short crops have seriously hampered the textile industries and, as a result, have greatly injured the

⁶ See p. 181.

⁶⁴ *Agriculture Yearbook*, 1921, pp. 323-306.

⁶⁵ *Ibid*, 1923, p. 796.

⁶⁶ *Ibid*, 1923, pp. 802-04.

market for our other crops. In this way dear cotton makes cheap hogs. As we have already noted, the domestic mills are taking an increasing part of our own crop. This situation has long caused worry to the industry abroad. For about two decades the British Cotton Growing Association, representing labor as well as capital in the textile industry, has been endeavoring to stimulate the growth of more and better cotton within the Empire.⁶⁷ The results up to the end of the war may be described as indifferent and progress during the war was negative. Nevertheless, it has been brought to light that in many places excellent natural facilities exist for cotton growing. India already produces more than four million bales and Egypt considerably over one million bales annually. The production in India is growing and the quality is being gradually changed to suit British needs. The production in Egypt is nearly static, but the Soudan is being opened up for production and promises material results, both on humid and irrigated lands.⁶⁸ South Africa and many other parts of that continent now under British control have the climate and soil for this crop, but the labor, though racially similar to that in our own cotton belt, is still very inferior. Many of these places and Australia are making beginnings in cotton production and promise results in the future if the United States supplies are reduced still farther.⁶⁹ Recently the Empire Cotton Growing Corporation has taken hold of the work of expanding this produc-

tion and has been given the right by law to levy a tax for the expansion of its efforts on all cotton purchased by spinners in Great Britain.⁷⁰ England is determined on this matter now and the United States will find serious competition in this crop unless her own output is expanded and costs reduced.

The grain exports of the United States have, as a rule, been of less value than the cotton exports. Nevertheless, the export trade in wheat and other grain has assumed tremendous proportions at times. Wheat, and wheat flour in terms of bushels of whole wheat, became very prominent in the exports in the seventies. A temporary peak was reached about 1880. After a decline for a decade, another peak was reached in 1892. The greatest export of prewar history came in 1902 with the equivalent of 234,773,000 bushels. After this an irregular decline ensued until just before the war. The war stimulated unprecedented exports of wheat and flour. The total went up to the equivalent of 332,465,000 bushels in 1914-15. In 1920-21 the record of 366,077,000 bushels was made on a rapidly falling market.⁷¹ The United Kingdom has always been the chief purchaser, although in prewar days Germany purchased extensively, and France less heavily, when we had a surplus for export.⁷² In these last two years the United Kingdom still leads. The customs records claim an export of 16,463,247 bushels of unground wheat to the United Kingdom and 24,539,647 to Canada in 1923. This shipment to Canada was almost certainly either shipped through or re-exported after milling, the export of United States grain through Montreal having been very heavy these last few years. Italy

⁶⁷ Annual Reports of the British Cotton Growing Association.

⁶⁸ Cotton Growing in the Soudan, publication of the British Empire Cotton Growing Association (1918).

⁶⁹ Himburg, W. H.: The Part Played by Our Empire in the Production of Raw Cotton; *Journal of the Textile Institute*, June, 1924.

⁷⁰ *The Board of Trade Journal*, October 11, 1923, p. 372.

⁷¹ *Agriculture Yearbook*, 1923, p. 1113.

⁷² See p. 129.

took 15,817,247 bushels. Holland is also charged with a large amount, 6,433,247 bushels. Here again, probably at least a substantial portion eventually found its way further, this time to Germany. Belgium, France, China and Japan are also charged with substantial amounts. The year 1923 shows a total export of 116,490,023 bushels of wheat in the form of grain, and the equivalent of 189,884,275 bushels including flour.⁶ Wheat is also imported to a certain extent. In pre-war years these imports were irregular. In 1920-21, 51,004,000 bushels came in and a substantial amount has appeared each year since.⁷² This is largely due to the superior quality of hard spring wheat for bread-making. We do not produce enough of this quality for our own use while Canada produces it very extensively.

Corn is also exported, although in smaller quantities. Again we find a rapidly rising export up to the last of the nineties, when an average of 192,-531,000 bushels was attained. From that time on until just before the war the corn exports fell irregularly to 10,726,000 bushels in 1913-14. The war stimulated somewhat larger exports but post-war demands have broken the war records. In the year 1921-22, 179,490,000 bushels were exported.⁷¹ In 1922, 163,609,213 bushels were exported, chiefly to Canada (which really uses at least some of the corn herself), Germany, the United Kingdom and Holland. In 1923 the quantity had fallen to 42,187,732 bushels in total.⁶ The imports of corn had been increasing in prewar years, reaching the total of 12,867,000 bushels in 1913-14. In 1919-20 10,229,000 bushels were imported, but since then the imports have been small.⁷³

Other coarse grains and oil-cake

meal are also exported, principally for the livestock of Western Europe. Oil-cake and other protein concentrate feeds and oil seeds are also imported.⁴

Rice and rice products are important in our foreign trade. Prior to the end of the war the imports surpassed the exports. In these post-war years, however, the imports have decreased rapidly, while the exports have risen to large figures.⁷³ In 1923 the exports of rice and its products amounted to 348,838,531 pounds. Japan was the chief market, with 61,427,534 pounds. The United Kingdom followed with 43,467,547 pounds. Canada, Belgium, France, Chile, Holland, Argentina, and France also were important customers.⁶

Our foreign grain market does not hold forth such good promise as the market for cotton. When we stop to consider the situation that will probably develop within a comparatively few years, when Eastern Europe is again producing for export and Canada has one of her periodical bumper crops, the future does not look bright. Canada alone is perfectly capable of producing half the world's import demands in wheat. She can do it in a good year without further expansion. Add to this the one-third of the world's requirements formerly produced by Eastern Europe and there is but little room for the supplies from the southern hemisphere. Moreover, the Canadian wheat, as already noted, has milling qualities superior to the type which this country is ready to raise for export. Last, but not least, the cost of production is lower in Canada, according to the findings of the Tariff Commission, and the cost of transportation to the seaboard is also lower.⁸³ In such circumstances, it would seem best for the American farmer to devote his energies to something else than wheat for export.

⁶ See p. 131.

⁷² *Ibid*, 1923, p. 1098.

⁷¹ See p. 144.

⁷³ *Agriculture Yearbook*, 1923, p. 1114.

⁸³ See p. 141.

There is a demand for feed grains and Canada cannot compete on corn and cotton-seed products. The Argentine, however, can compete with us successfully in selling corn. The cotton-seed products and other protein concentrates can probably be retained at home with advantage and converted here into animal products, thus saving the nitrogen for our soil. Corn also can be, and is, best exported in the form of pork. These last two items are practically one in the export market and will be considered under the heading of animal products.

The exports of dairy products were fairly important in the last quarter of the last century.⁷⁴ From then on until the beginning of the war the exports of butter and cheese steadily declined. The butter trade turned to a net import in 1914, while the cheese trade became a net import in 1905 and reached the greatest deficit in 1914.⁷⁵ During the war and immediately thereafter, exports of butter and cheese again exceeded the imports and condensed milk assumed an importance in the export trade.⁷⁴ This latter persists as a net export in itself. Butter and cheese have again become net imports and the total of all manufactured dairy products amounted to a net import of nearly half a billion pounds of milk equivalent in 1923. This is a larger deficit than before the war. In addition to this net import of manufactured products, in the year ending March 31, 1924, Canada shipped in 2,783,866 gallons of cream and 2,191,895 gallons of milk. There is such a tendency today toward recovery of the former export trade of the old surplus producers in the northern hemisphere and such an ex-

pansion of production in the countries south of the equator that we may, for a time at least, anticipate stronger rather than weaker international competition.⁷⁶

We still maintain a net export of eggs in spite of the dried and frozen eggs which come in from the Orient. In fact, this is one farm product whose net export is consistently increasing.^{76, 77} We have had no deficit since 1896. The net export was increasing before the war and we still have a considerable trade in spite of the decline from war years. Nevertheless, our export trade is small when compared with our total production. Cuba was our best customer in 1923, followed by Canada, Mexico and the United Kingdom.⁶ Poultry products may be shipped increasingly, for they are the product of settled rather than frontier agriculture. There is a real demand abroad for high-class eggs, as shown by the success of the Danish trade, but the United States exports fewer eggs than does that one small country.⁷⁸ The future possibilities of the poultry products market and that for dairy products are not dissimilar. There will eventually be ample demand, and we can produce the products. The question that determines the real development of such commerce is as to whether or not our domestic demand will continue to expand more rapidly than the production.

Our fruit trade contains important exports and important imports. In 1923 the exports were valued at \$67,450,907 and the imports at \$44,269,231. Of the imports, bananas accounted for \$19,738,508. The remainder was largely competitive with our

⁷⁴ Pirtle, T. R.: *Handbook of Dairy Statistics*, U. S. D. A.

⁷⁵ McFall, R. J.: *Livestock and Animal Products Statistics, 1909-19*; publication of *Dominion Bureau of Statistics*, pp. 129, 130.

⁷⁶ McFall, R. J.: *Economic Studies, Business Conditions*, No. 12.

⁷⁷ *Agriculture Yearbook*, 1923, p. 1111.

⁷⁸ See p. 181.

⁷⁹ McFall, R. J.: *Economic Studies, Business Conditions*, No. 9.

own production. The largest item in the export list is apples, which were valued at \$16,212,399. The United Kingdom was the chief customer for these. Next in order were oranges with a value of \$8,478,712 going largely to Canada. Pears exceeded all the remaining fresh fruits with a value of \$2,521,493. Raisins were valued at \$7,627,291. For these Canada was the largest customer, and the United Kingdom was second. Prunes amounted to \$5,211,262 and apricots to \$2,883,321. Western Europe and Canada are our chief customers for these. Canned fruits accounted for \$15,076,085 among our exports. Of these the United Kingdom takes about two-thirds in value.⁶

Our foreign trade in fresh fruits is largely with Great Britain and Canada. The latter country takes great quantities of our citrus fruits and will probably continue to take them. Great Britain is a valuable market for fresh fruit, but the Continent has always offered difficulties in the expansion of such a trade. Increasing prosperity should bring increased demand. Our chief competition in the sale of deciduous fruits on the British markets comes from Canada, the production in the southern hemisphere coming at a different time of year from ours.

The market for dried and canned fruit is large and it should be possible to expand this increasingly without fear of disastrous competition.

Tobacco has been an important export since colonial days. In 1923 the exports were valued at \$152,303,061, and the imports \$66,855,897. The exports went to a wide list of countries with the United Kingdom easily in the lead, taking an amount valued at \$79,994,729.⁶ China and Australia were next in the line of customers, and all the leading Western European nations purchased important amounts. In spite of

the fact that tobacco is one of our earliest exports, it has shown a consistent increase in export and, while the shipments grew somewhat during the war, they have been maintained recently at levels higher than the prewar.⁷⁹

The history of our foreign trade in beef and its related products shows an expanding export up to a high point of about 1,175,000,000 pounds in 1906, a very rapid decline to a large net import in 1914, a modest recovery of net export during the war, since when the net exports have declined. The ordinary figures on beef exports tell only a part of the story of the foreign trade connected with our cattle industry. During the period of heavy export, the shipments of live cattle to England ordinarily accounted for more than one-half as much as our shipments of dressed beef and beef fats taken together. Since 1912 the movement of cattle has been inward, largely from Canada in the form of "feeder stock" for fattening in the corn belt. In 1919 this movement reached the high total of 642,395 head of cattle. Since the war our exports of live cattle have re-appeared and exceeded the live imports in 1921 and 1922. With these exceptions, the estimated slaughtering weight of the imports has exceeded that of the live exports. The exports of dressed products include very heavy amounts of beef fats. The heaviest recorded shipments go to Holland, the ultimate destination for a large part probably being England. It is impossible to separate all the beef products in the customs records, but the error involved from neglecting the miscellaneous items is not large. A somewhat larger error appears in estimating the slaughtering weights of the live animals imported and exported. The accompanying chart is based upon computations which eliminate these errors as far as

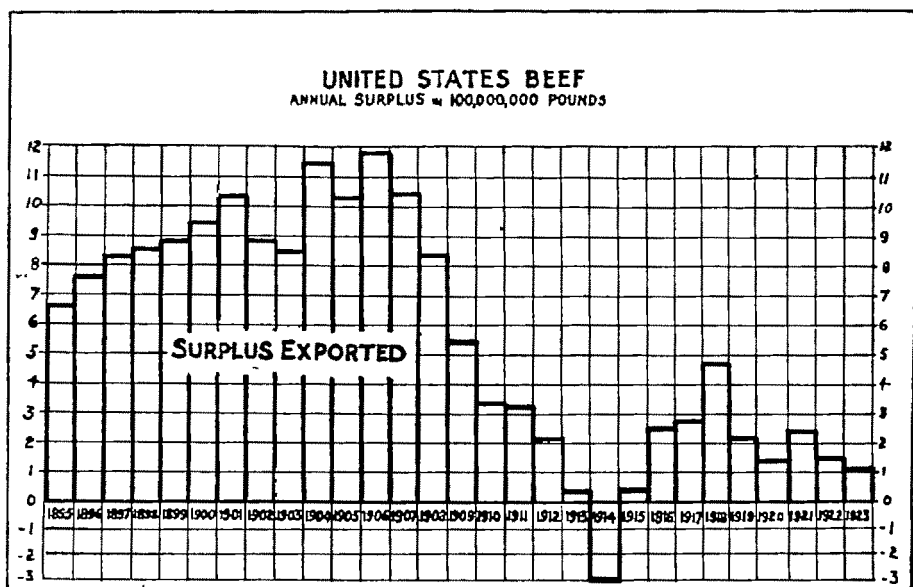
⁶ See p. 131.

⁷⁹ *Agriculture Yearbook*, 1923, p. 1118.

possible and show the net imports and exports of beef, including fats, and live animals reduced to meat equivalents. Had not the fats been included since the war the chart would have shown a net import in this late period. It must also be remembered that, in addition, we have a net import of cattle hides of very large proportions. In 1923 this amounted to 268,071,688 pounds with a value of \$48,672,821.⁶

The present export demand for beef

the United States practically disappeared on the British market during that period. Recently, according to the Department of Agriculture, the costs of production in the Argentine appear to be materially lower than ours.⁸⁰ The average exports from that country for the years 1921 to 1923 were 56 per cent above the average for 1909-13.⁸¹ Uruguay and Brazil have also increased their exports materially and can readily continue the



is large, but we have difficulty in competing with other countries and that difficulty will likely continue. The chief competition in beef exports comes from the southern hemisphere. England is the chief importer and in the decade before the war she so expanded her sources of supply that the trend of the average import price was actually downward, while our price trend was very markedly upward.⁷⁵ It is no wonder, in such circumstances, that the supplies from

increase. South Africa offers considerable possibilities in the export of beef and already contributes to world trade.⁴⁶ The beef market has been unprofitable recently for New Zealand and Australia and their output is not being developed as rapidly as it might were the competition from South America less severe.⁸² Market con-

⁸⁰ Arner, G. B. L.: *The Cattle Situation in Argentina* (U. S. D. A.) 1924.

⁸¹ *Foreign Crops and Markets* (U. S. D. A.) June 18, 1924, p. 547.

⁴⁶ See p. 140.

⁸² Weddell & Co., 36th Annual Report of the Frozen Meat Trade (1923).

⁶ See p. 131.

⁷⁵ See p. 164.

ditions which would be profitable for American producers would probably greatly stimulate production in Australasia. It is estimated that the world total cattle population has increased by 24,000,000 head since before the war. This figure may be an exaggeration on account of the vagaries in the Argentine census reports, but it is certain that the cattle population has increased greatly in many of the surplus producing countries. The foreign market is now taking large quantities of beef fat from us and this may continue. It appears to be quite certain that the American corn crop can compete on the world's markets when converted into animal fats. If it were not for the opposition of those who raise cattle for sale as feeders, the farmers of the corn belt could probably expand their profits from fattening Canadian feeder cattle for the export market. Even with a high duty there is now a large import of such stock for fattening and this helps along what little beef export that does exist.

The foreign trade in mutton and lamb, including sheep and lambs, in meat equivalent, is distinctly on the net import basis and has been, with the exception of a few scattering years, since 1897. The war did not serve to reverse this situation, but rather made it stronger until 1917. Since the war, each year has broken prewar records of net import and in 1920 the high point of 103,000,000 pounds was reached.

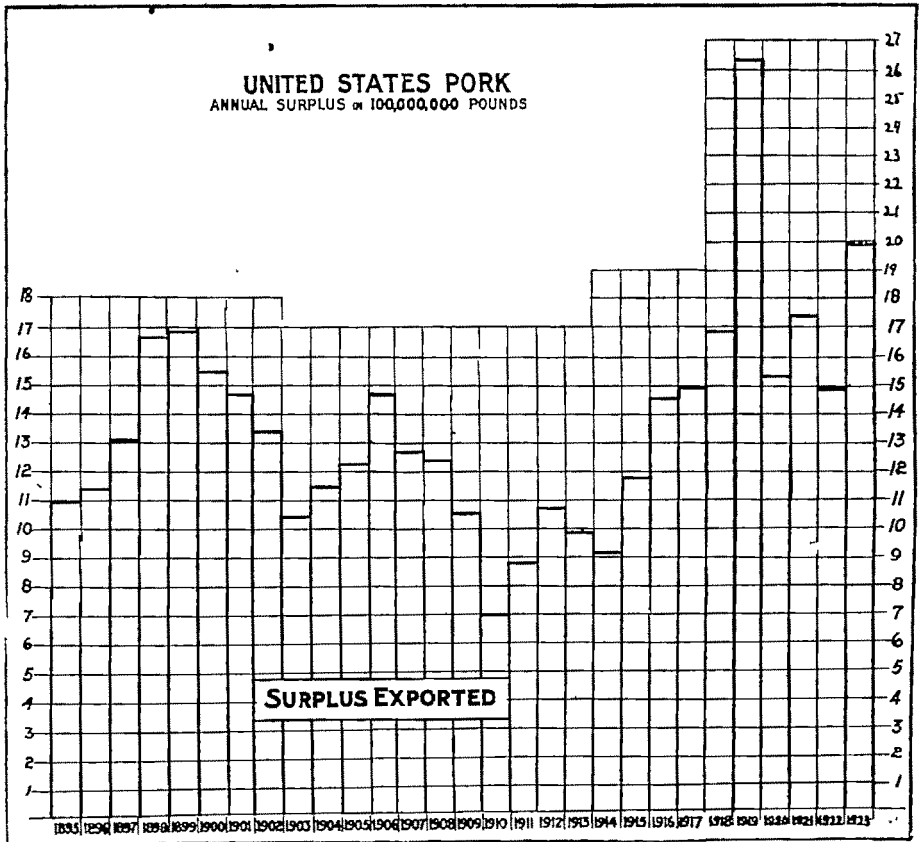
The reduction of the pork trade to the basis of a net figure for all products live and dressed, is of importance chiefly in summarizing the data for the various kinds of meat and fat. In no case is the international movement of live hogs noteworthy. There are, however, great changes in the foreign demand for dressed pork products.

Recently the demand is very strong for lard, just as it is for beef fats. The lard is exported heavily to the European continent as well as to the United Kingdom. In these last three years the export of lard exceeded that of all other pork products.⁶ The net export of all pork products is shown in the accompanying chart. It will be noted that the trend was irregularly downward before the war, violently upward during the war to record breaking levels, and that a tendency exists now for the trade to establish itself on an upward trend starting from a level as high as that of the end of the last century. (See next page.)

Hog products from the United States find a very real demand in the foreign market. This is particularly true of our lard. Strange to say, while the European wants our hog fat, he does not relish it mixed so strongly with the meat as he finds it in our bacon. The Britisher in particular wants a comparatively lean bacon. In the circumstances, our hog products fill a different place than the hog products of other countries. We probably could not compete with what is known abroad as the "bacon" type of hog, which is relatively thin and meaty. Neither can we sell our fat bacon to the best advantage.⁸ We can, however, sell the clear lard without a great deal of direct competition. Our efficient hog production is based upon corn feeding. That makes fat efficiently. The combination between the climatic and soil conditions of the American prairie, the lard type of hog and American farming methods appear to present a very efficient means of producing a kind of fat much sought after in foreign markets. The Argentine and parts of the Danubian

⁶ See p. 181.

⁸ Commerce Reports (U. S. D. C.) October 9, 1922, p. 86.



country have the natural facilities for this production and may eventually develop it, but have shown no marked indications of such development as yet. There probably are other things which those countries can do to better advantage unless the American product becomes considerably more expensive on the world's market.

It may be said briefly that no lack of foreign demand or presence of undue competition threatens our export of cotton, pork and other animal fats. The chief danger of losing this trade lies in our possible failure to supply ample quantities at favorable prices. As our economic life develops it also is probable that there will be ample opportunity to export more highly

specialized raw farm products, such as fruits, and we should find increasing outlets for manufactured goods based upon farm products.

THE INFLUENCE OF DEBT PAYMENTS AND THE BALANCE OF TRADE SITUATION

The influence of our general foreign trade situation, including the payments on debts due from European countries, is frequently regarded as a serious obstacle to the healthy development of our export trade. Half a century ago, when the value of our exports and imports was small, the effect of interposing such an "invisible" item into our balance of trade would have had very far-reaching

effects. Today the proportions of our foreign trade are such that any debt payments now arranged, or likely to be arranged, can be absorbed without seriously disturbing our commerce.

It would seem hardly necessary to develop any argument to the effect that practically all foreign trade settlements are made ultimately in the form of goods or services and that the major portion of the payments is made in actual goods. We already hold more than a convenient share of the world's gold. The movements of gold will be mostly outward in the next few years. Debt payments and payment for our current exports must be made in the form of services, such as ocean transportation, or else in the form of goods. The shipment of goods may be deferred in which case a temporary settlement is made by means of credit. Such transactions, however, mean future payment in goods or services and the amount of such payment is increased by the addition of interest to the principal. This is what happens when international investments are made or international loans floated.

The European debts, public and private, potentially due the United States are estimated to reach a very large amount. There is no chance that these debts will be paid in large lump sums. The terms of payment of the British debt of \$4,600,000,000 have been definitely arranged.⁸⁴ These terms call for payments reaching over a long term of years to cover interest and payments on principal. No definite arrangements have been made for the other important national debts. The financial state of the debtors renders it certain that there will be no immediate large payments. Payment may or may not be made eventually, but assuredly any payments that may be arranged for in the near

future will be modest. *There is no certain knowledge regarding the private debts, but we are led to believe that the major portion of these has either been paid in full, paid in depreciated currency, or written off as "bad debts."

The terms officially arranged for the British debt call for annual payments amounting approximately to \$160,000,000 for the first ten years, and \$180,000,000 to \$185,000,000 thereafter. There seems little chance of getting the other debtor nations to swell this sum for the immediate future. These figures by themselves are large; but their influence on our economic life, however, is not their absolute size but their relation to the amount of our foreign trade. In 1923 the total value of our imports was \$3,791,938,013 and of our exports \$4,091,151,669.⁶ The figures in the British debt payments look, and are, small in comparison with such totals. They are also very small in comparison with our total national income of approximately \$60,000,000,000. The debt payments can readily be absorbed into our national consumption, especially since our national productivity is estimated to increase in quantity about $3\frac{1}{2}$ per cent a year on the average. On this basis the payment of the debt would absorb a little less than 10 per cent of the normal increase in our national productivity for one year. This is trivial compared with the fluctuations which appear in our economic activity from time to time with changes in weather conditions or the business cycle. The debt payments can be absorbed without making their effect particularly noticeable.

A greater effect may perhaps come from the further developments of the factors which make up our annual balance of trade. The present indications are that for the next few years our

⁸⁴ *Commerce Yearbook*, 1922, p. 448.

⁶ See p. 131.

investments in, or loans to, Europe will offset the payments on debts. Temporarily, our exports will probably continue to exceed our imports. The longer this is kept up either as an investment policy or as the result of trade restrictions on imports, the greater will be the necessity later either to accept large imports or to reduce our exports. That may be a cause for future anxiety; for the present the extension of credit will probably obliterate even the small influence of debt payments.

It also is of interest in this connection to note that our

agricultural exports constitute the most valuable group among all the domestic exports from the United States and, on the average, form more than one-half the value of the total domestic products leaving the country.¹¹

In such a case a material portion of whatever effect of debt payments or credit extensions there may be on our whole commerce will appear in our trade in farm products.

FOREIGN EXCHANGE AND INFLUENCES OF INFLATION

The influence of foreign exchange for some years will probably be greater than that of actual debt payments. Here again there is danger of jumping at conclusions too rapidly. The foreign exchange rate on any country is due to several factors. To the extent to which it is due to monetary inflation in that country and the effect of that inflation has been thoroughly reflected in its prices, the influence of exchange is negligible. To a large extent European prices have risen to offset exchange rates. The price levels of England were almost the same as ours last July when converted to the gold basis.¹²

¹¹ See p. 132.

¹² Federal Reserve Bulletin, October, 1924, p. 807.

Trading with that country should not be impaired by the exchange rate with the United States. Continental exchanges as a rule, however, and prices have not fully kept pace. French prices in gold were at 117 in July as compared with our 156.¹³ This constituted a real handicap to trade, but not so great a barrier as would be indicated by the exchange rate alone.

The greatest influence of foreign exchange on our export market for farm products comes from the position in which we find ourselves as compared with the position of our competitors in the same market. Here again we need to know not only the exchange rate, but the price level as well, or the price level in terms of gold values. Canadian exchange is at about the same level as ours, but Canadian prices in gold were at 149 when ours were at 158.¹⁴ It would appear that so long as that state of affairs continued, Canada would have an advantage over us in competitive trade. Any country that competes with us in the sale of farm products and has materially lower prices for those products than our prices, by reason of either the exchange rate or the domestic price level, has the advantage over us in making sales. Since most of our competitors do have such an advantage over us, one reason for our present balance of trade in agricultural products is apparent.

It is impossible to outline such conditions for all our competitors, but the case with Argentina is striking and illustrates the general situation. Argentine exchange stood at 83.42 per cent of par in the third week of last September.¹⁵ Prices in that country, instead of being higher than ours to offset the smaller purchasing power of their money, are comparatively lower than ours. Cattle prices in Buenos

¹³ Federal Reserve Bulletin, October, 1924, p. 830.

Ayres for 1928 were only 90 per cent of the 1913 price in pesos.⁸⁰ As a consequence, our prices for export beef would have had to be down to 75 per cent of prewar to compete with that country even as poorly as we did in 1913. Moreover, the general retail price level in that country is also low. This index was 136 in pesos or 113 in gold.⁸⁰ This low level of general prices affects the cost of production of cattle and all other agricultural products.

A thorough discussion of the reasons for a higher price level in gold in the United States than in competing producing countries would require much space. It is possible that our present possession of the lion's share of the world's gold is one great reason for this situation. An examination of the balance of trade figures since the outbreak of war for these other countries might also show the influence of a cumulative "unfavorable" balance tending to depress their rate of exchange. High tariffs discouraging imports into the United States may also have an effect upon the comparative situation.

How long such exchange and price conditions will last it is difficult to determine. They are gradually correcting themselves and will probably soon be less influential. Meanwhile, our export sales are made in the face of strong competition.

THE EFFECT OF THE FOREIGN SITUATION UPON FARM PRICES IN THE UNITED STATES

It is more than a coincidence that the average price of farm products in the United States has been below the general domestic price level, while the effective purchasing capacity of our chief foreign markets is low. Our agriculture produces a surplus of many

products beyond the present normal requirements. The tendency always in price-making is for the weakest market necessary to consume the whole supply to be the determining factor. If we have a surplus beyond the requirements of the home market, the price will be set in the outside markets. Only monopolies which can maintain a two-price system can escape this rule. The present ability of Europe to pay through the products of their factories and their commercial activities has an enormous influence upon our prices for farm products. It is worthy of note that the purchasing power of farm products was greatly depressed when the "paying power" of Europe was the lowest and that the two are recovering together.⁸⁷

It is not so evident why the prices for cotton and wheat, which are being exported heavily, are comparatively better than for beef, which is exported but little. The effect of European depression shows up most plainly on the average of all farm products, since farming is more or less of an integrated business in which many substitutions of one crop for another are possible. The effect on any individual crop is varied by particular conditions. A study of our beef situation indicates that we would have a surplus for export if the domestic price were as much above prewar levels as are prices in general. Fundamentally we have an exportable surplus, but foreign competition chokes the export flow and necessitates domestic sale at low price. In such a case the influence of foreign conditions is certain to appear. In the case of dairy products the price level is not depressed so greatly because

⁸⁷ McFall, R. J.: The Balance Between Agriculture and Industry, *The Annalist*, November 7, 1921. Economic Studies; *Business Conditions*, No. 10, July, 7, 1923.

⁸⁰ See p 148.

our own production is smaller in comparison with the domestic demand. Wheat and cotton prices are high on account of world shortages. A world shortage of any product will send prices high at any time. Shortages come and go, and cannot be depended upon to increase farm prices normally. Products which we do not produce in excess of our normal national needs may be less depressed in price than exportable products, especially behind a tariff wall. The only hope, however, of maintaining a flourishing export business is, through efficient production, to cut down our costs and sell high quality goods at competitive prices.

CONCLUSIONS

The general trend of our foreign trade in farm products shows that, temporarily at least, the nation is facing a situation where the imports of food and other farm products are greater in value than the exports.

The shipment of some of our formerly important exports has already virtually disappeared and that of certain other products threatens to be engulfed in foreign competition. The beef export appears already to be a thing of the past and grain exports, excepting rice, are seriously threatened.

The demand for cotton, pork and animal fats is particularly strong and we can probably maintain our hold on these markets if we maintain our quantity and quality and sell at prices that will not be too tempting to a relatively inactive foreign competition in the production of these products.

The foreign demand for fruits, tobacco, dairy and poultry products and manufactured farm products is subject to an intermediate degree of competition. Developments in this quarter are particularly dependent upon our

ability to sell in a competition that is keen but possible to meet. Quality, salesmanship and price will determine the comparative degree to which such products are sold.

At the present our chief market, which is Western Europe, has plenty of need for our farm products, which is one factor in demand. She is weak in the other factor in demand, which is ability to pay. Consequently, she must buy at low prices.

The influence of foreign debts is small and likely for a few years to be outweighed by the influence of extension of credits and other foreign investments. The influence of a policy of restriction of imports, however, may eventually hamper our export of agricultural products.

The general situation as regards foreign prices and rates of exchange is at present highly unfavorable to our export of farm products. This situation is improving.

Europe might conceivably produce a much larger share of her agricultural requirements, but to do so she must revise her economic policy and specialize less upon exporting industrial goods to outside countries. There is no immediate prospect for such a change of policy.

When all is said, however, on these other subjects, the fact remains that the degree to which agriculture shares in our exports depends largely upon our own internal economy. Some will say that our tariff policy will affect the comparative place of farm products in our export trade. The finally determining matter, however, will be the relative economy and efficiency in our own production of farm goods and industrial goods. We shall continue a heavy export of something. International competition will force us to ship the goods which we produce most eco-

nomically. Our natural resources for agriculture are excellent and not as nearly exhausted as some think. Our industrial resources are also excellent. Which line of production will develop best depends largely on the comparative efficiency developed in these two fields. If the farmers look to boosted prices for profits they must lose their foreign market. If they seek and find lower costs of production and specialize on producing what the best markets want, there is no reason why we should not maintain a certain amount of export trade in farm products.

A Domestic Market for American Farm Products

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THE gravity of the depression suffered by American agriculture from 1920 to 1924 is so well established by known facts that it can no longer be concealed by the well-meant efforts of some to compel an over-optimistic view or the deliberate attempts of others to disguise as much as possible the magnitude of the farmers' difficulties. During the present year, a considerable amount of partial relief has been afforded by the occurrence of poor crops in other countries, as well as by certain adjustments in our own farming economy, but it is by no means clear that the depression is ended.

The depression called attention to certain disadvantages involved in the fact that some of our great staples are on an export basis, disadvantages that consist especially in the difficulty of controlling the level of value of agricultural products by the conventional method that may be resorted to by other industries—namely, the imposition or modification of import duties. Consequently, there has been some tendency to anticipate a time when our agriculture may be largely devoted to production for the domestic market. What is the outlook for achieving this condition and what are its implications for the welfare of the American farmer and of the nation as a whole? These questions are important irrespective of whether the great depression through which we have been passing shall persist or shall prove to have run its course.

It is desirable at the outset to take stock of our present position in regard to the external market and sources of supply. This need be only a bird's-eye view, for the writer has discussed the

subject in considerable detail in a previous number of *The Annals*, and the situation has been presented in even greater detail in other more recent publications.¹

CAUSES OF EXPORT DECLINE

The rapid expansion in the volume of our agricultural exports reached a peak about 1897-98. Thereafter there was a rapid decline which continued until approximately the outbreak of the World War. This decline consisted mainly in bread grains and livestock and livestock products. The proximate explanation is not far to seek; for the per capita acreage of wheat was decreasing with great rapidity and that of corn somewhat less rapidly. The change during approximately the first decade of the present century was quite remarkable. The five-year average per capita acreage of harvested wheat centered on the year 1909 was only three-fourths as large as it had been for the corresponding period a decade earlier, while for corn it was less than 90 per cent as large. On the other hand, the per capita acreage of cotton increased slightly during the decade, and in spite of the expanding depredations of the boll weevil, the trend of cotton exports was slowly upward until about the outbreak of the World War, but not rapid enough to offset the decrease in exports of grain and livestock products.

¹ *The Annals*, March, 1924. See also articles "The Utilization of Our Lands for Crops, Pasture, and Forests" and "The Wheat Situation" in *Yearbook of the U. S. Department of Agriculture*, 1923; Nourse, Edwin G., *American Agriculture and the European Market*, New York, 1924.

The fundamental causes of this general trend were numerous and complicated and would require much space for analysis. Briefly, the change in general trend reflected the rapid increase of our consuming population in cities as compared with our population engaged in farming, which resulted in a more rapid increase in the domestic price levels of our principal exported food products than occurred in the price levels of the same products in the European consuming markets.²

This tendency, however, probably reflects a more significant fact, namely, the disappearance of our reserve of easily cultivable land of good quality and the great shrinkage in the per capita area of pasture. The first factor was largely qualitative, the second quantitative. Of land physically capable of cultivation we have upwards of 600 million acres not yet under the plow, an amount nearly double the estimated crop acreage of 1920, but practically all of it is characterized by important disabilities of one kind or another—poverty of soil, excessive aridity or moisture, necessity of clearing of stumps, brush or stones, remoteness from market.

Through encroachment of crop utilization and increase of population, it has been estimated that the per capita area of pasture was reduced by approximately 50 per cent in the three decades preceding 1920.³

In the period from 1900 to the outbreak of the World War the expansion of the grain producing area was largely into the semi-arid lands of the Great Plains and inter-mountain plateaus, where uncertainty of rainfall and high cost of transportation

tended to raise the marginal supply price.

The abnormal demand of the World War period completely reversed the tendency which characterized the decade and a half preceding the great struggle. A large expansion of the area devoted to the bread grains and some contraction in the per capita disappearance in this country made possible a large increase in exports of wheat and rye. An unusual succession of good corn crops resulted in a considerable increase in the exportable surplus of hog products. On the other hand, the depredations of the boll weevil, the migration of negro laborers to northern factories, the cutting off of Central European markets, and the increased demand for cotton in home consumption were factors which resulted in a decrease during the war period in the volume of cotton exports, a tendency which has not been reversed during the post-war period. The exports of cotton for the past five years have been less than 70 per cent of the amount for the five years 1909-14.

REACTIONS FROM MARKET COLLAPSE

It is not necessary to describe in detail the great change which followed the collapse of the price level of agricultural products in 1920 and 1921, but it is worth while to sketch briefly the reactions of this great change on our agricultural production and export trade.

The wheat area, which averaged for 1919-22 about 18 million acres above the average for 1909-13, had been increased largely at the expense of pasture and to some extent at the expense of corn and other crops, but also by the extension of the farming area in the Great Plains region. During the past three years there has been a slow but steady decrease in the acreage of wheat and rye, a decrease the slowness of

² Cf. Nourse, Edwin G., *American Agriculture and the European Market*, pp. 296-303.

³ For fuller details see "The Utilization of Our Lands for Crops, Pasture and Forests," *Yearbook* of U. S. Department of Agriculture, 1923.

which illustrates the economic inertia that prevents a quick readjustment of farm acreage to the demands of a declining market. However, the readjustment, though tardy, is already considerable. The preliminary estimate of the wheat acreage harvested in 1924 is only $12\frac{1}{2}$ per cent above the average for the five years preceding the World War. In fact, on a per capita basis the estimated wheat acreage of 1924 is slightly less than that for the five-year period preceding the World War.

READJUSTMENT PERIOD

The volume of export of wheat has also decreased rapidly in the period of readjustment. For the seven years 1914-20 our net exports of wheat and flour were equivalent to an average of 255 million bushels. Our exports last year had decreased to 156 million. But, on the basis of the average yields of 1914-20 and the average annual per capita disappearance for food and feed, and allowing for seed, the acreage of 1924 would provide an export surplus of only 118 million bushels a year, which is only about 15 million bushels more than the average exports for 1909-13. Approximately the reduction of another million acres of wheat area will bring us back to the same basis which prevailed before the World War.

Of course, the reduced acreage of 1924 was largely in response to the very discouraging price level of 1923. It is conceivable that the prices of the present year may stimulate some increase of wheat acreage. Nevertheless, it appears that on an acreage basis we are not far from the prewar status. Indeed, if there had not been some reduction since the prewar period in per capita requirement for feed and seed, the wheat acreage of 1924 would make possible on the average a smaller export surplus than was available in the period 1909-14.

The general tendency of rye production has been similar to that of wheat production but the readjustment has been less complete. Before the World War rye was of very minor importance as an export crop, but the exports were rapidly expanded, so that as late as 1922 exports of rye in bushels amounted to nearly one-fourth the volume of wheat exports. The acreage in 1924 was still nearly double the average of 1909-13, but the average yield per acre of the expanded area has been somewhat smaller than in the prewar period. However, on the basis of average yields and per capita disappearance, the acreage of 1924 would normally provide an export surplus of a little over 20 million bushels. This is about twenty-five times the average exports of 1909-13, but the surplus is the growth of only about one and a half million acres, so it represents a very small phase of the problem of returning to a balanced agriculture.

In relation to total area and production, direct exports of corn have never been very significant, nor was there any significant expansion either in acreage or exports during the war. Indeed, the outstanding fact is that the acreage of corn was approximately the same in 1923 as in 1910, which signifies a decrease of nearly 17 per cent in per capita acreage. An unbroken succession of years from 1919 to 1923, when the yield was above the ten-year average of 1909-18, furnished a surplus for the five years which exceeded by nearly one and a half billion bushels the quantity of corn produced in the five years 1909-13, although the average acreage in the later period was actually less than in the earlier one.

This tremendous corn surplus, together with the great reduction in Europe's purchasing power which was an important cause of the depression, made corn so cheap that a considerable

expansion in the volume of direct exports occurred in 1921 and 1922, a condition which was largely terminated by the higher prices which resulted from the unfavorable outlook for the crop of 1924.

However, the enormous expansion in corn surplus took the form mainly of a large increase of hog production and of the export of hog products. Even before these circumstances arose, pork and lard were important items in our export trade, the only remaining kind of livestock products that continued to hold an important place in our exports. It is estimated that the exports of pork and lard in 1919 represented the product of 15 per cent of our total pork production. The product of 1923 was 27 per cent larger than in 1919 and the exports 30 per cent greater.

However, the short crop of 1924 has greatly increased the price of corn, and consequently the export demand. The hog surplus is being rapidly diminished not only by rapid marketing for slaughter but also by reduction in the number of pigs farrowed and in the number of stock hogs. In short, the war produced no over-expansion in the corn and hog industry. The apparently excessive surplus was largely the result of an unusual combination of fortunate seasons. Per capita acreage of corn and even the per capita number of hogs are lower than they were a decade and a half ago.

Tobacco is another product which occupies a place of considerable importance in our export trade, though of much less importance in terms of acreage and general significance than the products previously considered. There was a steady increase in acreage and production of tobacco from 1914 to 1920, followed by a considerable reduction in the first years of depression, but in 1923 a return nearly to the acreage of 1920. There was a further reduc-

tion in the current year, so that the estimated per capita area in 1924 was about 17 per cent larger than the average for 1909-13. However, the entire acreage in tobacco is only about a half of one per cent of our total crop area.

We have now considered briefly the extent of the export surplus for products which represented nearly 85 per cent in value of our total agricultural exports in 1923, and a much larger proportion of our products which are really on a net export basis. In fact, the products which have been considered comprise practically all that are of great importance in discussing the question of a domestic market for farm products.

CAN THE UNITED STATES REACH A DOMESTIC BASIS?

The above survey has shown that we have nearly achieved the prewar relationship between exports and production. Whatever abnormal expansion the war occasioned has been nearly eliminated by the silent processes of readjustment.

However, in the years just preceding the World War we still had a considerable export surplus. In ordinary years we were then able to sell this surplus at prices which, as compared with the depression period, were relatively satisfactory. In other words, our export surplus in the prewar years was not an abnormal surplus in the sense that the surplus, say, of 1921-22 was abnormal.

However, even if we are back or nearly back to the export basis of 1909-13, it does not follow that this surplus may not prove excessive under the changed conditions of supply and demand which have resulted from the war. It is known that Europe has been reduced to a greater measure of self-sufficiency for food products, and that in all the large consuming countries, including

our own, the war induced important economies in per capita consumption through closer milling, modifications in diet, and other adjustments. Although Russia and some of the countries of Southeastern Europe no longer contribute as formerly to the export acreage of the bread grains, yet there was an enormous expansion of wheat acreage in Canada, the Argentine and Australia, so that on the basis of countries for which comparable statistics are available the world's wheat acreage was about 12.5 per cent larger in 1923-24 than the average for 1909-13. The world acreage of rye, however, does not appear to have materially changed. There is also a probability that Russia and the grain-producing regions of Southeastern Europe may become larger factors in the export market. It is also recognized that Canada has a large potential area of virgin land capable of use for small grain.

POSSIBILITIES OF EXPANSION

Even in our own country we have large possibilities of expansion in grain production when the value level shall justify the cost involved. It will be recalled that in 1919 our harvested wheat acreage was over 40 per cent greater than for the year 1924. In this country, as well as in Canada and Australia, there is a large potential grain-producing area consisting of semi-arid lands where, on account of irregularity of rainfall or uncertainty as to frost, grain production is hazardous but entirely practicable when the value level is high enough to justify the risks involved. In fact, by utilizing inferior lands and intensifying production it would be possible to produce in the United States the entire present wheat supply of the world.

In short, the course of our export trade in the bread grains depends

mainly on (1) the effective demand in importing countries, and (2) the relation of marginal supply prices in the United States to the marginal supply prices of its principal competitors. In view of the large number of unknown circumstances affecting these conditions, it is only possible to suggest some of the considerations which may indicate the balance of probabilities.

Demand is conditioned by consumption requirements and ability to purchase and is, of course, inversely affected by the price level itself. The first question, then, is as to the increase of world population and the bearing of this increase on requirements for consumption of wheat and rye. Fortunately, the countries which rely mainly on these grains for bread are those which have fairly good population statistics or reliable estimates, for, while it has been estimated that the population of the world is increasing at the rate of approximately 20 million per annum,⁴ a considerable proportion of this increase consists of people who are not consumers of wheat and rye.

Excluding Russia, all of Asia except Japan, and a few minor countries for which comparable statistics are not available, it appears that the world's wheat-eating population increased at an average rate of a little more than 6 million per annum from 1909-13. A calculation of average per capita disappearance of wheat and rye for the several countries indicates that about 25 million bushels of wheat and 7.3 million bushels of rye would be required to provide for such an increase of population. This suggests at least the probable volume of expansion in requirements of wheat and rye that is

⁴ Tylor, W. Russell: *The National Increase of Contemporary Peoples*. An unpublished doctoral dissertation prepared at the University of Wisconsin.

likely to prevail as population growth returns to an approximate normal status. For wheat at least there is also a considerable unsatisfied consuming power due to inadequate ability to purchase. With improvement in economic and political conditions this potential increase in consuming power on the part of existing populations would probably be reflected in a considerable increase of demand.

FROM DEBTOR TO CREDITOR NATION

Some promise of improvement in the general financial condition of the Central European countries has become apparent as a result of recent political developments. However, there has been considerable progress since 1914 in these countries toward a greater self-sufficiency and also in the way of economies in milling and consumption. Furthermore, American exports are hampered by the remarkable reversal in credit balance whereby, from being a debtor nation to the extent of a net balance of about five billion dollars, we have become a creditor nation with a net balance of approximately 15 billion, though much of this latter consists of unfunded obligations not yet bearing interest. It has been estimated that for 1923 interest on private debts due this country plus interest on the British debt to this country will nearly equal the invisible items in our balance of accounts with Europe. Should France or other European countries begin paying interest to this country this would still further increase the balance of payments due this country.⁵

It is clear, then, that since 1914 there has been a net change in favor of this country of several hundred

million dollars of annual interest payments. This can be offset by additional borrowing for a time, which merely postpones and ultimately increases the payment of interest to this country; or it must be offset by increased exports or services furnished by foreign countries to this country or by diminished purchases by foreign countries in this country. Increased exports of manufactured products to this country are hindered by our high tariff barriers. We have also somewhat restricted services in the form of shipping charges through the maintenance of a subsidized merchant marine, but there has been a marked increase in American tourists' expenditures in foreign countries.

The fundamental scarcity in world capital which resulted from the war and which is much more manifest in Europe and other foreign countries than in the United States⁶ appears likely for some years to stimulate loans by this country abroad, a policy that will be facilitated if greater political stability shall be achieved in Europe and the Orient. It would not be surprising if investment of capital by this country abroad should continue an important characteristic of our national economy for a considerable number of years. In this case, the unfavorable reaction of the balance of payments on our export trade may be postponed until a more remote period.

Whatever may occur in this regard, the existing poverty of Europe, and for that matter, of other sections of the world, is likely to restrict buying to fundamentals. Since Europe must meet its obligations to America to some extent by exporting manufactured products either to this country

⁵ See article "The Economic Future of Our Agriculture," by C. L. Holmes, *Journal of Political Economy*, Oct. 1924.

⁶ See "Cheap Money, Gold, and Federal Reserve Bank Policy," by Benjamin M. Anderson, Jr., *Chase Economic Bulletin*, IV, No. 3.

or indirectly through triangular trade via South America or the Orient, it appears probable that raw materials such as cotton will be in demand at all costs; but, on the other hand, there is likely to be a tendency to economize as much as possible in commodities for direct consumption in Europe, such as grain and hog products.

Another element in the outlook which is hard to gauge is the probable effect of the unprecedented accumulation of gold in this country. If this should tend to raise the level of gold prices in this country as compared with Europe, a tendency which has been predicted by some economists, our export trade of farm products would probably be seriously affected.

The above brief review of foreign demand factors contains many "ifs," but taken as a whole they do not suggest a greatly increased effective demand for our agricultural exports in the next few years with the probable exception of cotton.

THE EXPORT OUTLOOK

On the supply side it would appear that even a somewhat increased foreign demand would be more probably met by increased production in Canada and possibly the Argentine and Australia. This conclusion would seem to rest on the following facts: Under the general level of value for bread grains and meat products which prevailed from 1900 to 1914 our exports of these products were steadily decreasing. The lowered value levels which prevailed during the recent depression also resulted in a gradual shrinkage of our acreage and exports of the bread grains. In the same period, however, our neighbor, Canada, increased her acreage nearly 25 per cent in spite of the low level of prices. This would appear to confirm the conclusion supported by the somewhat meager known facts as to the

character of the potential crop acreage in Canada, as well as by the information on comparative production, transportation and marketing costs; namely, that the Canadian wheat industry is at present capable of expanding at somewhat lower marginal supply prices than are requisite to stimulate the expansion of the bread grain acreage in the United States.⁷

The remarkable rigidity of the corn acreage, even under the potent stimulus of war prices, and the resulting large decrease in per capita acreage of corn mentioned above, suggest that under ordinary levels of value for corn and hog products we are not likely to have a marked expansion of these industries.

In fact, it is most significant that our per capita acreage of all crop land was less at each census period after 1900 and has continued to decrease since 1920. The expanded acreage of wheat, rye and tobacco in the war period were made possible partly by shifts in the utilization of the per capita area and partly by the reduction of the per capita acreage employed in feeding livestock.⁸

If our productive acreage continues to manifest the continued resistance to expansion which the above facts suggest, it appears reasonable to suppose that our export surplus of grain and hog products will tend to shrink for some years on account of the necessity of devoting the surplus to meet the needs of our rapidly increasing population. If there were no expansion at all in our crop area, the normal export surplus of wheat available from the acreage of 1924 less our normal imports would be sufficient to

⁷ See article "The Wheat Situation," *Yearbook* for 1923, U. S. Department of Agriculture.

⁸ See "The Utilization of Our Land for Crops, Pasture and Forests," *Yearbook* for 1923, U. S. Department of Agriculture, pp. 433-443, 446-449.

maintain a population increase of about 17 per cent, the increase of about the same number of years at present rates. The assumption of no increase in total crop acreage, some of which would be employed for wheat, is of course quite improbable. However, such an increase is likely to be offset to a considerable extent by the tendency to divert some of our surplus wheat acreage to meet the increasing requirements of other farm products. All in all, it seems improbable that our wheat industry will be on a regular deficit basis before a period of from one to two decades has elapsed.

Our relative surplus of hog products is much smaller, and as already noted, is much more abnormal than the wheat acreage of 1924. However, a rapid process of readjustment is under way. The June survey of the U. S. Department of Agriculture indicated decreases as compared with the previous year of 21 per cent in number of hogs farrowing, 20 per cent in number of pigs saved last spring, 6 per cent in number of sows bred or to be bred to farrow this fall, and 10 to 15 per cent in the number of fall pigs.

Hog production in this country is largely dependent on corn. There is a tendency, of course, to substitute in part forage crops, roots and other more intensive crops, but corn is still the important basis. It has already been noted that the per capita acreage of corn decreased 17 per cent from 1910 to 1923. Moreover, although in the past decade and a half there has been a notable decrease in per capita consumption of beef, the per capita consumption of pork and lard has not decreased. The experience of Germany suggests a tendency toward maintaining a comparatively large per capita consumption of hog products when population is dense, and it seems probable that we shall not have a

marked decrease in per capita consumption of hog products. Consequently, one would expect that our domestic requirement for corn to provide our increasing population with hog products and dairy products will rapidly absorb the comparatively small percentages of exports of corn and hog products.

The outlook for cotton exports is on an entirely different basis. In the first place, even when scarcity of land becomes more evident in our national economy than at present, it is entirely possible that we may continue to devote a large area to producing cotton for export, though compelled to rely on imports of other agricultural products in order to spare the land for this purpose. An important consideration in this regard is the fact that cotton is essentially an intensive crop, requiring a comparatively small land area in proportion to value of product. The same consideration makes quality of land relatively less important than in the case of grain, for it facilitates the employment of comparatively light, sandy soils with the aid of fertilizers. There are enormous areas of such lands still in reserve in the southern states. Moreover, recent events seem to indicate a large potential expansion in the semi-arid lands of the Southwest.

The depredations of the boll weevil, which have been mainly responsible for decreasing the average yield of cotton nearly 20 per cent in the past quarter of a century, the rising level of wages in the South, and the necessity of resorting to fertilizers in the expansion of the industry have raised the marginal supply price of cotton. This may create a more favorable opportunity for the large extension of the area in foreign countries. However, one is inclined to be somewhat skeptical as to this becoming a large factor in the outlook. Since a decade or

more before the Civil War the bogey of foreign competition has been raised. However, though India, Egypt and the South American countries have become large producers since that period, the process of expansion has been too gradual to menace seriously the preponderance of the southern states in the cotton industry.

These considerations do not point toward the probability that this nation will cease to produce cotton for export during the next decade and a half or even longer; and the same general conclusion would seem to be justified in the case of tobacco, and for somewhat the same reasons.

In brief, then, the probability that we shall attain the purely domestic basis of production in a comparatively few years seems strongest for corn and hog products; it also exists in the case of the bread grains, but perhaps not for another decade at least. It seems likely that we shall continue to export cotton and tobacco for a much longer period. With the exception of these products, our agriculture is already mainly on the basis of the domestic market or the domestic market supplemented by imports; and measured by value our agricultural exports and imports are already not far from a general balance.

INFLUENCE OF A HOME MARKET ON THE FARMER

One sometimes hears it said that if we were on an import, rather than on an export, basis of production for a particular product, say, wheat, the farmer would benefit by the freight charges both going and coming. For instance, since the freight charge per bushel of wheat from Minneapolis to Liverpool via New York was 25.6 cents in the fall of 1923, it is assumed that the farmer in the neighborhood of Minneapolis loses this much plus the

other marketing charges by having an export surplus to dispose of, and that if America were on a net import basis, the farm price near Minneapolis would be increased not only by the cost of shipping to Liverpool but also by the additional cost of bringing wheat from Liverpool to the United States.

To attempt to criticise so naïve a concept may appear like directing one's batteries against a straw man. However, the conception may afford a useful starting point for analyzing the influence of production for the export market on the economic position of the farmer.

The first and most obvious point is that while we have been selling our surplus in Europe, we would probably buy for import nearer home. In fact, we are already generally on a deficit basis for hard spring wheat and have been importing considerable quantities at times in spite of the barrier of tariff and transportation costs. In short, Canada would probably be the main reliance for supplementing our bread basket, and the cost of transportation from Canada rather than from Liverpool the significant item.

However, assuming this nation were self-sufficient in wheat production, neither importing nor exporting farm products, and it became necessary to rely on importation, it would not follow that the value of wheat would have to be higher by the amount of the cost of transportation from Canada to the United States. If the Canadian producers had been previously compelled to market their wheat to Europe, and suddenly found it possible to sell a considerable part of the supply in the United States, the relative competition would give the American consumers the advantage of their greater nearness to the grain fields. To illustrate, if Canadians

could afford to sell wheat in Liverpool at \$1.38 when freight and marketing charges amount to 30 cents a bushel, and if it became possible to sell in New York by paying a transportation charge of 21 cents, the Canadian farmer could then afford to sell his wheat at \$1.29 in New York. Now if the marginal supply price in the United States had been 12 cents higher than the Canadian, the necessity of importing Canadian grain, assuming no tariff, would raise the price level only by 9 cents rather than by 21 cents.

In short, it is clear that relative marginal supply prices are likely to be determining factors. The differential between Liverpool and North Dakota could not be added to the price received by the farmer in the latter state unless his supply price were correspondingly increased, for

competition would ultimately force the level of market prices in this country to the level of marginal supply price. The latter may increase slowly in this country as we are forced to expand our production to meet our requirements, but if the change comes slowly the increase will be capitalized in real estate values, and will, therefore, not be of benefit to the new generation of farmers.

There may be some advantage in being able to correct abnormal dislocations of the price by a sliding-scale tariff, administrative readjustments in rates, or some other similar device.

There are also broader considerations from the standpoint of national interest and welfare, as distinguished from the profits of farmers, which cannot be discussed within the scope of the present paper.

The American Farmer and the Tariff

By CHARLES W. HOLMAN

Secretary, The National Co-operative Milk Producers' Federation

THIS paper will undertake to show the changed relation of the American farmer to the American tariff. It will also show the extent to which a protective tariff on agricultural products is an integral part of a national agrarian policy.

Party conflicts over the tariff are historically grounded in the economic conflict between agricultural producers and industrial producers. In the early days of the Republic the Democratic party more nearly represented the agricultural groups, while the Republican party had its roots in the industrial communities. The agricultural South, having been accustomed since Colonial days to importing its requirements, did not look with great enthusiasm to the prospect of paying higher prices for such requirements in order to permit the development of the industrial North. The industrial North, on the other hand, very quickly adopted a policy of protection for manufactured products and free trade on the raw materials needed by such manufacturers. Organized labor has usually accommodated itself to this view of the manufacturer with respect to commodities produced by organized labor. In its effort, however, to establish "real wages," it has tended to oppose duties on certain products in which its consumptive interest would be greater than its wage interest. These commodities are notably the products of the farm. For a similar reason, manufacturers, anxious that their laborers shall get "real wages" without themselves having to increase their wage bills, have usually desired free trade in agricultural products.

As the nation developed and the tariff became an accepted part of the national policy, conflicts between the urban and rural sections of the communities lessened in severity. The Democratic party changed its slogan to "A tariff for revenue only." The Republican party maintained its historic position. Tariff contests in the Congress, therefore, reduced themselves to questions that involved not so much whether there should be rates, but the nature of the rates themselves and the relation of the various items in a tariff act to each other and the effect upon the various groups of such rates.

Equitable distribution of benefits among the people, smoothing out of glaring inequalities in the bills, became the chief issues in the intervals between the passage of each succeeding tariff act. No tariff act has ever satisfied all of the people and each succeeding tariff act has tended to increase many duties.

GENERAL PREWAR AGRICULTURAL CONDITIONS

It is pertinent to inquire into the causes of the changed attitude of farmers toward tariff and their demand for protective duties on agricultural commodities. This involves a study which will only be briefly treated here—the declining curve of our agricultural exports and the rising curve of our manufactured exports. In the expanding years of our agriculture—the developing seventies, eighties and nineties—Europe afforded a market for most of our surplus farm products. Those were the expanding years of European manufacturing; those were also years when the farm product

lands, such as Argentina, Australia, New Zealand, Canada and Siberia, were not competing seriously with ours in the world trade. Those were years when our abundant crops from the virgin lands of the Mississippi Valley and the Western plateaus produced enormous export surpluses which were sold at any price to Europe's satisfaction and our discouragement.

From 1900 to 1914, however, American farm production tended to become static while domestic consumption, due to the great accession of the industrial population, tended to absorb our production. Cotton was about the only export crop which maintained the volume of its outward movement, exports of fresh beef fell down to nothing, and exports of pork products were declining. Wheat had fallen from one-half billion bushels of export of a few decades before to an average of less than one hundred million bushels. But the condition of American agriculture was sound and farmers were more generally prosperous than at any time since the beginning of the Civil War. Few people had analyzed the silent changes which were taking place in Europe's buying policies or recognized that this American farm prosperity in 1914 was largely the result of the force of domestic production and consumption being more nearly balanced. But even then there were indications that certain agricultural products from other nations would be placed upon the domestic market in competition with our own farm producers.

The World War temporarily upset this slowing down process of American agriculture which had been accompanied by quiet changes in farming programs. The impulse of high prices and government propaganda revealed an undreamt capacity of American agriculture to expand production. For a time this expansion worked to our ad-

vantage, since the war curtailed Europe's production and a shortage of shipping prevented material expansion in South America, Australasia and the new lands of the Orient.

Our expansion program continued well into 1920, and was accompanied by material rises in costs. Then came the world release of surpluses and precipitous price declines in raw commodities. American farming immediately dived from the plateau of prosperity into the slough of disaster.

LESSON OF THE DUMPING EVIL

The first task of the surplus-producing nations was to dispose of their surplus. That led to indiscriminate dumping wherever markets would absorb commodities, and the United States for a time was the most attractive dumping ground for other nations. Their money being worth little and in some cases nothing, our money looked good to them no matter what price was paid for their commodities. The rural districts were the first to feel the evil effects of dumping and a clamor arose for the government to put an end to it. Through the efforts of certain farm organizations at Washington, Congress responded to the farmers' cry for help and in the spring of 1921 passed a special emergency tariff act which gave a modicum of protection to a number of agricultural commodities. The effect of the emergency tariff act was immediately discernible. For a time it checked the dumping evil and tended to stabilize farm prices. Experience with the act, however, convinced many leaders of farm organizations that the rates in it were not high enough to be incorporated in a permanent tariff act and that many other commodities should be included.

Out of this experience there developed a settled conviction that American farmers would always in the future

take a keener interest in tariff making because of the changes which have occurred in the latter-day world. These changes include:

(1) The development of newer countries and cheaper lands producing export surpluses which must find a market irrespective of price.

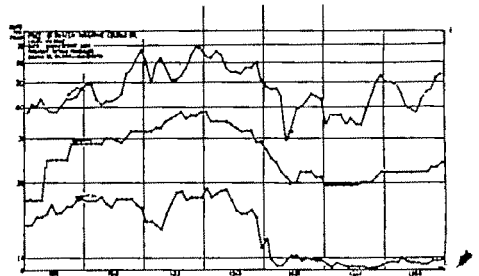
(2) Realization of discrimination against agriculture in former tariff bills. This discrimination has never been as severe as many advocates would have the public believe. For if one will examine the various tariff acts he will find that a consistent policy has been pursued of putting on the free list many of the important articles which farmers buy. There have been deviations from this policy, but in the main it has been pursued consistently by both parties.

(3) The realization by farmers of the unique position of America as an exporting nation of both raw and manufactured products. This situation complicates the problems of both farmers and manufacturers. It is a relatively simple matter for a country like England, where industry is the dominant source of revenue, to adopt trade policies that will benefit the nation as a whole. England can well afford to purchase the raw products of the colonies and of the Orient when there is a chance of selling back her manufactured articles. But the farmers of the United States are competing with the farmers of the newer countries where manufacturing has not yet developed. At the same time American manufacturers are competing with European manufacturers. In consequence our trade position is isolated and there is bound to ensue a struggle between American farmers and American exporters on any question where international trade possibilities are involved. This finds expression in conflicts over tariff legislation.

The farmer has good reason to be-

lieve that the future will witness this urban versus rural conflict grow into an even fiercer struggle. The relative increase of urban population over rural population will make it more difficult as time goes on for farmers to secure their tariff demands. A tariff on agricultural products is an integral part of a national policy for the perpetuating of a self-sufficing farm population.

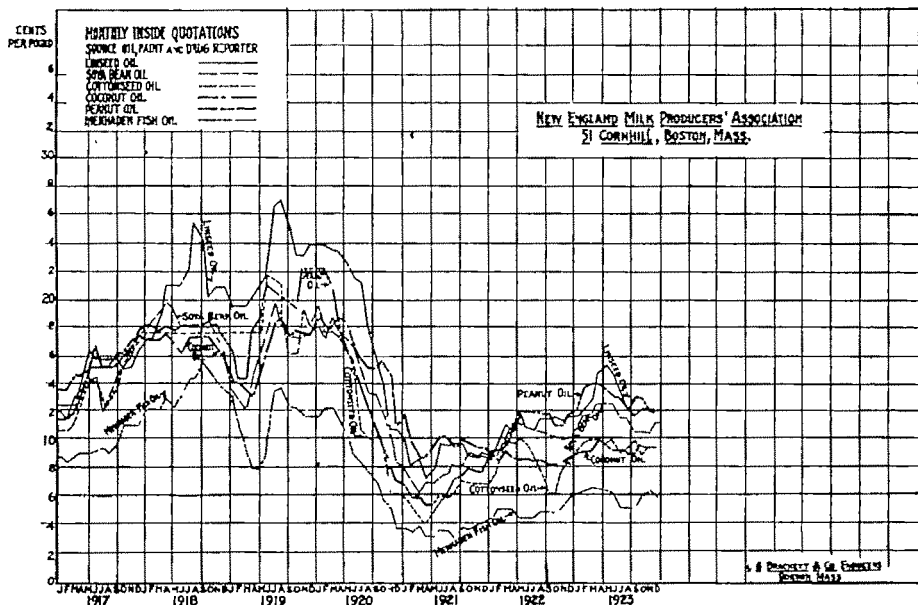
(4) The ability of science to substitute one article for another in the manufacture of products. This has produced a new form of competition which is best illustrated in the case of the fat supply. American farmers produce certain vegetable oil materials, the most important of which are cottonseed, flaxseed, peanut and soya bean. They are also producers of all of the animal fats. American fishermen are producers of important fish oils such as the menhaden and the cod liver oils, and some fishermen bring in whale oil.



In normal times we produce annually from four billion to five billion pounds of animal, fish and vegetable fats and over 1,600,000,000 pounds of fat in butter. This alone would leave us an exportable surplus of about 700,000,000 pounds of fat, but owing to the interchangeability of oils, American manufacturers annually import about 300,000,000 pounds of fats, principally vegetable oils, which displace in industry the home produced oils and fats. That increases our exportable surplus to nearly one billion pounds.

Not only are most of these vegetable oils interchangeable among themselves but they are also interchangeable with fish and animal oils. The margarine industry, for example, uses nearly a score of different types of fats as its ingredients.

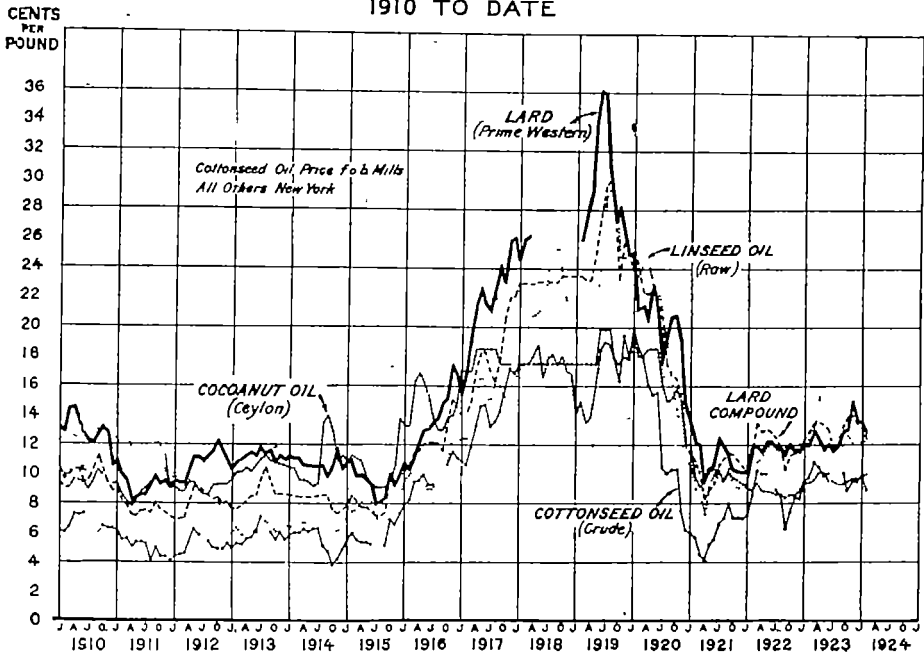
oil, and olive oil are important competitors in salad dressing. There are hosts of other oils such as sunflower, hemp, rape, sesame and perilla seed. These in time will find important uses in competition with the major vegetable oils already being utilized.



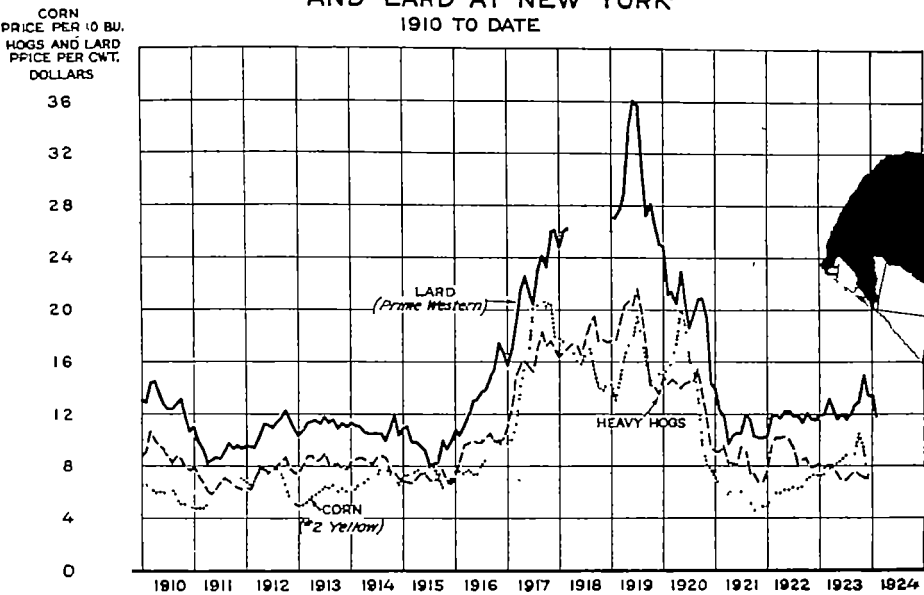
Another illustration may be serviceable. In Europe soya bean oil is frequently used in the making of margarine. In this country soya bean oil competes primarily with cottonseed oil in the manufacture of lard substitutes. Soybean oil also can enter into paint and varnish. About 10 per cent of the oil in the mixture competes with linseed oil. Soybean oil competes with cottonseed oil as an important ingredient in the manufacture of oleomargarine, but of late imported coconut oil has become an important vegetable fat used in the margarine industry. Coconut oil also competes with butter in the confectionery and baking trades. Palm kernel oil bids fair to become the great competitor of coconut oil since it can be used for anything for which coconut oil is now used. Peanut oil, cottonseed

Most of these competitive vegetable oils come from the tropics of Asia and Africa with great possibilities of production in Australia and South America. In 1920, over ten billion pounds of vegetable oil materials went into international export trade. The potential supply of these oils is unlimited. On the other hand, the animal oil supply is relatively limited and the fish oil supply varies with the catch. The European program with respect to fats is fairly definite. England, France, Holland, Germany and Denmark are the chief manufacturers and the tendency of the Europeans is to bring to their plants the raw materials direct from these countries. Such a program gives them employment for their labor, manufacturers' conversion profits and the cattle feeds which are by-products of most

• PRICES OF VEGETABLE OILS, LARD
• AND LARD COMPOUND
1910 TO DATE



PRICES OF CORN AND HOGS AT CHICAGO
AND LARD AT NEW YORK
1910 TO DATE



oil seeds. Japan is a large converter of oils; but the large Japanese firms which operate in these fats can easily shift their programs to exporting all raw materials should converting the oils prove to be less profitable than the other trade. This is made possible by their far-flung networks of trading organizations which collect the raw materials and bring them to ports.

Certain American manufacturers of fats would like to have the privilege of purchasing vegetable oil materials and oils duty free. That would enable them to displace large quantities of American produced oils, which in turn would be forced upon the European markets in competition with additional quantities of Orient oils already going there. The interest, therefore, of the American farmer in a tariff on oils lies in protecting his domestic market on oil seeds which has been threatened by the former huge imports from the Orient. It would be easy to trace the direct relationship of the price of cottonseed to the market price of cottonseed oil, and the relationship of the market price of cottonseed oil to the other major oils. Likewise it can be shown that there is a direct connection between the market price of coconut oil and the market price of butter and margarine.

Out of this situation we find the need of tariff protection to the producer of some commodities which already are exported in large quantities and whose prices are determined by international forces.

THE FORDNEY TARIFF BILL

The growing need for farm representation in tariff-making was reflected in the activities of certain farm organizations while the Fordney-McCumber Tariff Act of September, 1922, was in the making. By that time many farm groups were agreed upon the need of

duties being placed upon imported oils and fats. The dairy farmers had worked out a well-defined program with regard to dairy products. The wool producers and the egg and poultry men, the citrus and deciduous fruit growers had arrived at the duties they desired and the growers of cereal crops had given expressions. This made it possible for the permanent and temporary representatives of farm groups who were stationed in Washington to form a working committee among themselves and to make agreements. Those agreements were reflected in combinations which took place within the Congress. Most of the agricultural activity occurred after the House had passed the Fordney Tariff Bill. Grave inequalities in the bill caused the farm representatives to ask the Senate Committee on Finance to make needed changes. Very little difficulty was experienced in securing these changes with the exception of the paragraphs relating to vegetable oils. Here was staged a bitter contest with the Senate Finance Committee in the main being against the farmers and the Senate as a committee of the whole sustaining the position of its Finance Committee. When the matter came to final passage, however, the duties requested by the farm organizations on vegetable oils went through with the exception of the duty on copra, which largely neutralized the effectiveness of the duty on its derivative, coconut oil. This battle had many sensational features. While it was going on the oil markets of the United States reflected in a speculative way the varying fortunes of the contestants.

This tariff act gave more prominence to farm duties than any other act. It gave higher protective rates to organized industry than any other act. It also has produced more Federal revenue than any other act. Much criti-

cism has been made of the act on the grounds that the protection given agriculture is outweighed by the protection given other industries. Intricate calculations have been made to sustain such criticisms. The writer does not purpose to deal with this phase of the subject beyond pointing out that most of these calculations have been theoretical and without enough fact basis to make them trustworthy. The important thing for farmers to remember in connection with this act is that they made great headway in establishing the principle of protection for agricultural products and secured a greater equalization of benefits than came from any previous tariff act.

FATAL "FLEXIBLE TARIFF PROVISION"

But there was a "fly in the ointment." The Tariff Act of 1922 contained a section which was destined to sow discord and perpetuate strife. It was Section 315, popularly known as the "flexible tariff provision." Within five months after the passage of the act, certain industrial interests were invoking this provision in efforts to take away from farmers some of the benefits the latter had wrung out of Congress. And so the scene of conflict has shifted from the halls of Congress to the home of the U. S. Tariff Commission; and the conflict itself has become continuous, expensive and wasteful.

To understand this provision it may be well to recall the object of a tariff. The government has one viewpoint. The industry concerned has its own viewpoint. The government lays a tariff to secure revenue and bring about national economic sufficiency; but in doing so it must always consider the effect of such tariffs upon its friendly relations with other countries. The special industry seeks a tariff, usually, (1) to equalize costs of production plus a fair profit for most of the American

producers, (2) to secure domestic price stabilization by preventing seasonal dumping, and (3) sometimes to obtain exorbitant profits at the expense of the consuming public. Other reasons may govern either the government or the industry, but the problem of determining a rate is usually the result of a compromise between these views; and the compromise represents the judgment of common sense. The basic reason for one rate may be to protect against trade discrimination, another may be to develop needed industries, a third may be to prevent dumping, but no single reason can underlie the making of all of the tariff rates. It would therefore follow that no single rule can be workable in making changes in the rates which were fixed by Congress.

In making a tariff, Congress also recognizes a relationship which certain commodities have to each other and the rates on these commodities are scaled. Consequently, to change the rate on one commodity without taking into consideration its relation to some others can have very serious effects upon an industry. Notwithstanding this well-known principle in tariff making, Congress made a notable departure in the Act of 1922 by including Section 315. This departure was in part a compromise with critics who demanded that the tariff be taken out of politics. In part it was a compromise with enthusiasts who desired to have the duties laid on the basis of their wholesale market value in America instead of in the country where they were produced.

The flexible tariff provision gives the President the right to make changes in the tariff to the extent of either raising or lowering the duties by 50 per cent. It provides that the necessary facts governing a change in the duties shall be ascertained by the U. S. Tariff Commission and the President shall make his decision only after the Commission

has reported the results of its fact finding. In ascertaining its facts, the Commission is limited to a single rule, namely the differences in cost of production in the United States and in some country which the Commission may designate as the "principal country of competition." In exercising his judgment, the President is permitted slightly broader discretionary powers. The extent of these powers, however, have not been adequately determined and are hardly known to the general public. The Commission may initiate inquiries. The President may also order the Commission to initiate inquiries.

The flexible provision is of such a character that its operation is inevitably doomed to failure; for the rule by which investigations can be made is only one of the rules by which Congress determines a duty. Congress was evidently unwilling to give either the President or the Commission as broad a grant of power in rate changing as it possesses in rate making. To have done so would undoubtedly have been unconstitutional. Even the power already granted is held by some constitutional authorities to be a direct violation of the Constitution itself. Yet it must be clear to any one that the power to change, if this power is to be effective, must be as broad as the power to levy duties.

Agricultural organizations have had an unusual amount of contact with the operation of the flexible tariff provision.¹ A large amount of the Com-

¹ On December 1, 1924, about two years and two months after the passage of the flexible tariff provision, the U. S. Tariff Commission had started 40 investigations, but abandoned 8. Of the remaining 32 the commodities affected are not of great importance except those affecting agriculture: i.e., butter, sugar, casain, Swiss cheese, wheat and wheat products, linseed oil, cottonseed oil, peanut oil, soya bean oil, coconut oil and fish oils. Decisions had been reached in only 3 out of the 32 cases. One of these decisions concerned wheat and wheat products. The

Commission's activities during the past two years has been devoted to investigations of the fairness of rates in commodities affected with an agricultural interest. In fact so much time has been given by the Commission to studies of this character that it may be reasonable to say that the opponents of duties on raw products are seeking to utilize this new machinery to carry out their ends. So far the experience of farmers with the Commission has been sufficiently unsatisfactory to cause some important groups to ask for the repeal of the flexible tariff provision. Here are some of the reasons why they seek a return to the old practice of congressional tariff making:

The act creating the Tariff Commission conceived of a research body without quasi-judicial functions. The Tariff Commission was to make continuous studies of tariff facts and report its findings to Congress from time to time. A commission of this character could very easily do its duty on a bipartisan basis, and the law provided that not more than three members should belong to a single political party. But when the flexible tariff provision became a part of the law the Commission's functions automatically changed. While it is true that the Attorney-General has held that it is still a fact-finding body, it is also true that its methods of working resemble that of an economic court. It sits as a body in public hearings, collects facts and passes its judgments on to the President for a final decision. Under conditions of this character a bipartisan commission can hardly hope to arrive at unanimous conclusions, and its members are very likely to carry into prac-

Commission recommended and the President ordered the duty to be raised on wheat and lowered on wheat-milled feeds. The result was a lessening of spring wheat imports from Canada and an increase in imports of milled feeds.

tical operation the traditions of their respective parties with regard to conclusions. It is doubtful whether any bipartisan commission could be selected that would be unanimous. It is also doubtful whether any commission, even if it were unanimous, could apply satisfactorily the cost of production rule in making tariff changes.

The above criticism applies to the general workings of the law. The following criticisms will apply to the procedure adopted by the present Commission which has made its activities so obnoxious to agricultural producers.

WHEREIN THE COMMISSION HAS FAILED

- (1) **The Commission has the right to determine what is the principal country of competition.**

It has established no set rule for determining this question, but has generally been guided by volume of exports. Potential competition has not been given its proper place in the Commission's consideration. This is illustrated by the Commission's investigation of the butter tariff rates. Without consulting the organized dairy interests, the Commission took upon itself the task of determining the principal country of competition and decided it to be Denmark. Now it happens that Denmark is a country which has about reached the peak of its possible exports. It is also a country which produces butter at very high costs and trusts to improved marketing machinery and the production of a high class of product to offset the disadvantage of high production costs. Denmark also has the practice of so distributing her butter exports that her principal markets will never be excessively crowded. It sometimes happens that heavy receipts in the British market from New Zealand, Argentina and Australia make it necessary for Denmark to shift a part of her butter to

other markets. Should the exchange rates be satisfactory, she will move certain cargoes to the Port of New York; but her shipments to the United States are usually only for this purpose, or when the exchange would permit a profitable movement. Argentina, New Zealand and Australia, on the other hand, are countries of very large production possibilities and their production curves have been ascending rapidly since the close of the World War. These countries have not built for themselves, as yet, the markets which the Danish people have worked up, and they are seeking to put their butter wherever there may be a demand. This situation has caused Denmark to view with some concern the competition of the southern hemisphere and to send investigators there to study production trends. The known lower costs in these countries, combined with their rapid increases in production, make them more formidable potential competitors for the American domestic market than Denmark ever can be. Yet the Commission injudiciously chose Denmark, and the results of that choice may prove detrimental and even disastrous to the American dairy farmers. If a comparison of the costs of production in Denmark and the United States should reveal only slight differences, it would be very difficult for the President to avoid lowering the butter tariff rate, even though the effect of this lowering would be greatly to accelerate the movement into the United States of butter from the southern hemisphere. It may therefore happen that a strict application of the cost of production theory will intensify the dumping evil.

- (2) **One theory upon which the flexible tariff provision rested was the necessity of making rapid adjustments in tariff rates to equalize changing conditions of competition.**

The procedure of the Tariff Commission has not justified such expectations. Its investigations have been long drawn out and characterized by a lack of decision. Only one or two investigations have been concluded. This slowness of action clearly frustrates the design of Congress; for it may result in decisions to change rates based upon evidence taken at cut-off periods of from one to two years prior to a decision. For example, the investigation of casein began in the early spring of 1923. That investigation has not yet produced a decision. But uncertainty as to the result of the investigation was no doubt a contributing factor to the crash in market prices of casein which occurred shortly after the investigation began.

- (3) In some very important cases where the producers have maintained that the competition was between agricultural producers of competing nations, the Commission has insisted upon deciding the competition to be between the manufacturers or converters of the raw materials.

In those cases it has failed to utilize evidence of agricultural costs; it has taken manufacturers' converting costs and the prices paid by manufacturers for raw materials. The two most notable instances of this attitude have to do with the investigations of sugar and of vegetable oils. In the sugar case, however, the President recognized the justice of the American sugar planter's plea, which was sustained by most of the farm organizations and ordered the Commission to report upon farm costs. The vegetable oil cases are still pending, but it is known that the investigators are not studying the agricultural costs in these instances.

- (4) The flexible tariff provision instructs the Commission to give notice of hearings so that interested parties "shall be given an opportunity to be present, to produce evidence and to be heard."

But in its procedure, the Commission appears to consider these hearings as mere "window dressing" affairs. It sits patiently through the hearings but refuses the interested parties permission to make direct inquiries of the investigators of the Commission itself. In consequence it is often impossible to get at the fact basis of the Commission's private investigations. The Commission receives evidence from (a) witnesses at public hearings, (b) investigators employed by it, and (c) confidential evidence voluntarily furnished to it. The interested parties are not in a position to refute evidence of which they have no knowledge and hence this phase of the Commission's procedure is very unpopular with farm producers.

- (5) It is doubtful whether it has ever succeeded in getting exactly comparable cost data.

It is well known that investigations in foreign countries have been unsatisfactory and have produced very little information exactly comparable with investigations in this country. The Commission's investigators have been furnished with certain types of information, but they have rarely been given an opportunity to make really adequate checks of the accuracy of such information.

- (6) The bipartisan character of the Commission and its new responsibilities have laid it open to the just charge that the flexible tariff provision has plunged the tariff further into politics than it ever was before.

This bipartisan character results in destroying the reputation of the Commission for fair-minded, disinterested, scientific investigations. It is destroying the confidence of the public in the Commission itself.

The above criticisms, in the judgment of this writer, would be inevitably true no matter whom the President might appoint on the Tariff Commission. It is the logical result of the transference by Congress of a power which should have remained vested in Congress itself.

While the flexible tariff provision should be repealed, there remains an important function for the Commission to perform. This function is the one for which it was originally created. It should be adequately financed to carry on studies of the effects of each tariff upon the public and the industries concerned and to make its reports to Congress. But tariff-making by commission or executive order is today highly repugnant to the agricultural groups who have had experience with this unfortunate practice. As between tariff-making by Congress and tariff-changing by executive order, there is no doubt where agriculture should stand. It can adjust itself to almost any tariff; but it cannot adjust itself easily to the uncertainty which prevails under the flexible tariff provision. This uncertainty is aggravated by speculators who take advantage of the possibilities of change.

PRICE-MAKING ELEMENT IN TARIFF

One phase of this situation deserves some consideration. It is claimed that a tariff unsupported by price-making machinery can have little influence upon domestic prices of agricultural commodities when those commodities are internationally produced and subject to international trade influences. Wheat is taken as the principal illustration of this contention. It has been

held that the tariff on wheat has had little to do with the price of wheat. Undoubtedly that is true with the exception of spring wheat, but considerable evidence exists to show that the grower of spring wheat has materially benefited by the existence of a duty. Great benefits have come to the northwest from the duties on flaxseed and linseed oil and the remarkable acreage increases in flaxseed which has been marketed at a fair range of prices attest this fact.

This wheat situation, however, led to a movement to bring about government interference with market prices in such a way as to stabilize domestic prices of certain agricultural products behind a high tariff wall. This movement culminated in the attempt to pass the well-known McNary-Haugen Bill. That bill rested upon a further extension of the flexible tariff powers so that imports of commodities could be completely shut off and a governmental corporation could name a price on domestic sales which would return to farmers a ratio price slightly under the buying power of these agricultural commodities for the period 1909-13. It was then proposed that this corporation should sell the surplus products upon the world market and spread the losses on export sales among the producers by a plan which would resemble a governmentally-operated pool.

This movement fell short of attainment in the last session of Congress; but it has many strong advocates who will make another attempt to enact the McNary-Haugen Bill. It is mentioned here primarily to show the growing importance of tariff-making in the minds of American farmers. It also shows in a vivid way a groping toward forms of organization that will be effective in domestic marketing and comparable with the price-making powers of great industrial organizations.

Measuring the Spread from Farmer to Consumer

By WALTER P. HEDDEN

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IN the course of popular discussion centering around the distribution of farm products, a renewed interest in the margin or spread between farm price and retail price is manifest. The violent ups and downs of prices during the war and post-war periods appear to have drawn attention beyond the immediate prices with which the producer or consumer is concerned to the relation between them. At least, we have heard a good deal about the price of the apple on the fruit-stand compared to the price of the apple in the orchard with questions as to "what happens in the dark" and "how much of the consumer's dollar goes to the producer." There is no doubt that the spread is there, although how large is difficult to say. Still more puzzling is how to reduce it.

STUDIES IN DISTRIBUTION MARGINS

In addition to the standard formulas of tariff revision, lowering freight rates, and encouragement of co-operative marketing, there are numerous suggestions for lessening distribution margins. Many feel that physical improvements in grade and quality of produce, improvement in methods of transportation, development of temporary storage reservoirs, provision of modern and adequate terminal facilities will, through reduction in waste and handling cost, bring about a smaller spread. Others are more inclined to pin their faith in commercial reforms. They see unnecessary middlemen to be eliminated, the necessity of regulating crop distribution in accordance with the consuming capacity, a substitution of merchandising for dumping. To aid in evaluating

these suggestions and others, a technique of measurement is needed which will establish not only how large the spread between farm and retail price is, but how it is divided up under different conditions of time, place and commodity; how it varies, and with what influences it may be associated.

Through the activity of government bureaus and commissions, of universities, and of certain commercial agencies, such as the California Fruit Growers' Exchange and the National League of Commission Merchants, a number of margin studies have been made from time to time. The results of these investigations make it clear that the portion of the consumer's dollar which goes to the grower is by no means constant. According to one study, the potato growers of Wisconsin were receiving twenty-one cents out of every dollar spent for their product by the consumers of Chicago in 1923.¹ At the same time the Maine potato growers secured thirty-one cents of the Boston consumer's dollar. Over the five-year period from 1917-21 the California Fruit Growers' Exchange calculates that the grower received 39 per cent of the retail price for his oranges. In 1921 the gross return to cranberry growers was found to be fifty-four cents of every dollar spent

¹The margins quoted may be found in a mimeographed release by the Cost of Marketing Division, Bureau of Agricultural Economics, entitled: *An Analysis of the Retail Price of Potatoes Grown in Maine, Minnesota, Wisconsin and Michigan, and Sold in Boston, Chicago and Pittsburgh*, by Manning and Swarthout; and Department Bulletins No. 1261 and No. 1109, *Operating Methods and Expenses of Co-operative Citrus-Fruit Marketing Agencies and Sales Methods and Policies of a Grower's National Marketing Agency*.

at retail. No generalization about the share of the farmer or of any distributor puts us very far along until the reasons for the variance are examined.

REASONS FOR MARGIN VARIANCE

A little study of the figures makes clear that the value of the commodity selected, and the day, month or year for which comparison is made, have much to do with the way in which the consumer's dollar is distributed. For certain items of distributive cost, such as the transportation charge, distance between farm and market, is also significant. The latter is easily illustrated by the following comparison of freight margins on potatoes:²

From	To	Freight per cent of Wholesale Price	Approximate mileage
New Jersey	New York City	11	60
Wisconsin	Chicago	19	220
Minnesota	Chicago	27	460
Maine	Boston	31	470
Maine	New York City	42	700

The effect of retail value in establishing relative magnitude of fixed distributing costs, such as freight, may be seen in these figures:³

Commodity	From	To	Approximate Mileage	Freight per cent Retail Price	Retail Value per Car
Potatoes	Maine	Boston	470	18.2	\$980
Oranges	California	All points	...	17.1	3,280
Apples	Washington	New York City	3,000	16.0	3,780
Cranberries	New Jersey, Wisconsin, and Massachu- setts	All points	800	7.4	3,600

² Figures for movement to New York City are from unpublished records of a local carlot receiver for year 1921. Other computed from data in Cost of Marketing Division release previously cited.

³ Figures from publications previously cited except for apples, which are found in mimeographed release entitled: *Margins and Costs in the Marketing of Washington Apples 1922-23*, by K. B. Gardner, Bureau of Agricultural Economics.

Despite the limited mileage represented by the Maine to Boston potato movement in comparison to the trans-continental routing of oranges and apples, the freight item on the former is a larger share of the retail price, due of course to the great disparity in value per carlot. Because of the high value per pound for cranberries, freight is less than half as important for cranberries as for potatoes, although the average haul for the former is almost twice that of these particular potatoes.

That the particular time selected for a comparison of prices to the consumer with component costs of distribution means much in their mutual relationship can be seen in the contrast of transportation costs from year to

year for California oranges. Within five years the transportation portion of the consumer's dollar shifted from 19.5 to 12.7 and back to 22.5.

It is not impossible, then, by careful selection of time, place and commodity to establish almost any spread desired.

Year	Retail Price per Box	Transportation Portion of Consumer's Dollar
1917	\$4.74	19.5
1918	7.63	12.7
1919	7.80	16.3
1920	8.10	15.9
1921	7.37	22.5

Used as a tool of analysis rather than of propaganda, however, margin comparison is a valuable aid in attacking the distribution problem. With proper care in collection of data and computation of spread, and with adequate statistical treatment of results, the more important elements in marketing costs can be thrown into their true perspective.

METHODS OF COMPUTING GROSS MARGINS

There are at least two common methods of computing gross margins now in vogue. The first, usually developed in connection with accounting studies, consists of comparing purchase and sales records, cost of goods with sale value. The second places reliance on the computed differentials between price quotations for similar grades of a commodity at sequential points in the distributing system. There are, in reality, two variants of the first method. One limits the cost and sales price comparison to a particular shipper or dealer, but embraces all lots of a given commodity handled by him within a given period. The other attempts to trace through shippers' or dealers' records a particular unit amount such as carlot.

Theoretically, the advantage of working with records of actual sales bulks large. Moreover, when developed in conjunction with standard sets of accounts, gross margins can be compared with net margins, classified expenditures, stock turn, and volume of business. Actually, the success of this method depends largely upon the availability of records representing a sufficient concentration of business to afford an adequate sample. Too frequently it is necessary to assume that the record of one shipping organization or one dealer is "representative of the trade." Records of co-operative

organizations or country buyers, combining a fairly large percentage of total shipment from an area, are good sources for this type of study and have been frequently utilized. At the city end a sufficient sample is more difficult to obtain. Even the entire records of a carlot receiver may give scant data from which to establish margins for any particular variety. The study of fresh fruit and vegetable distribution by Phillips and Fraser, for example, while it covered a total of 9,476 cars, included such minimum samples as six cars of asparagus and six cars of Florida lettuce.⁴ Seven out of thirty commodity classifications contained less than fifty-car samples as a basis for computing margins. In the retail field this kind of record is doubly difficult to obtain. In accounting studies, such as those initiated by the Harvard Bureau of Business Research among retail grocers, the margins for particular varieties are obscured. Even an intensive investigation like that undertaken by the N. Y. Federal Food Board in 1918, employing the time of a large force of inspectors and accountants for several months, yielded data for only 58 groceries with general variety classes such as "onions" or "potatoes."⁵

Practically, the time and expense of such investigations are such that they cannot be made at all points in the marketing chain at the same time in sufficient volume to give a wholly complete and satisfactory picture. It is an illuminating experience to attempt to trace the subsequent sales of so small a sample as two carlots of a commodity after delivery at a city terminal market.

⁴ *The Wholesale Distribution of Fresh Fruits and Vegetables*, Phillips and Fraser, 1921, for the National League of Commission Merchants, et al.

⁵ Published by the N. Y. State Department of Farms and Markets as Circular 240—Retail Grocery Stores.

A carlot scatters to fifteen or twenty jobbers and then to three or four hundred retailers and finally to five thousand consumers. To keep a warm trail, particularly in the event of no record of cash purchasers, is a feat for any margin hound.

The second alternative, matching up sequential price quotations for a particular grade, size and unit of a commodity, has the advantage of allowing widespread simultaneous sampling and the use of currently published data such as wholesale prices, freight charges and the like. The obvious objections are that the quotations may not truly represent the bulk of actual sales or that shrinkage and deterioration, resulting in changes in assumed quality or quantity, may be such as to vitiate the comparisons. These objections carry most weight in connection with prices for extreme perishables. If all oranges were simply "oranges" for pricing purposes, comparisons would be simple; but when one finds that oranges marketed by the California Fruit Growers' Exchange are packed in ten sizes under approximately eight hundred brand names, each bringing a slightly different price at the wholesale auctions, the need for an expert matchmaker is apparent. In order not to exaggerate the difficulty, it should be said, however, that the size of the oranges is stamped on each box and that sub-brands are grouped under two or three commercial grade brands within which prices do not vary to any great extent. It is possible for collectors of retail and jobbing prices, by careful attention to details of size, grade, brand and condition, to identify satisfactorily the goods for which prices are quoted. The prevailing practice of chain stores and many unit markets in regard to price-marking their wares makes false quotation difficult to investigators who are resident consumers

of the neighborhood. Personal experience in frequent checks upon quotations of New York City jobbers, through examination of their sales slips, has shown the former to be representative of the model class of sales.

Without attempting a final conclusion as to the relative merit of the methods of assembling price data for margin calculation, it may be observed that practically all of the complete consumer dollar studies have been made by a combination of these methods. Shipping point records of prices paid to growers and returns from F. O. B. or delivered sales to city receivers are compared with collected wholesale, jobbing and retail quotations.

DIFFICULTIES IN ANALYZING MARGINS

Safely out of the frying pan of price selection one is immediately into the fire of interpretation. The basis of computing a margin may be markup on cost or percentage of selling price. When an entire series of differentials between prices are computed, it is convenient to state them in terms of the final price at the retail store, reading them as cents of the consumer's dollar. Objection can be made that the further one goes towards the consumer the more is the size of the percentage *markup* above each dealer's cost distorted by the reduction of all margins to fractions of the final price. A box of apples sold at \$5.00 retail may have cost the retailer \$3.00, the jobber \$2.50 and the wholesaler \$2.00. In terms of the consumer's dollar the margins are: retailer 40 per cent, jobber 10 per cent, wholesaler 10 per cent. In terms of each dealer's *own* selling price the margins would be retailer 40 per cent, jobber 17 per cent, and wholesaler 20 per cent. In terms of *cost* price the margins are retailer 67 per cent, jobber 20 per cent and wholesaler 25 per cent.

For ease of presentation and comparison the consumer's dollar distribution is desirable, but any interpretation must be made with care. If the purpose is to show the importance of each division of the spread in its effect upon the retail price, an analysis of the consumer's dollar is fairly satisfactory, although it must be remembered that a difference in one cent at shipping point or at wholesale may mean considerably more further along, because of the common practice of adding a percentage markup in merchandising. As a gauge of gross profit, margins derived from price comparisons must be further considered in relation to volume of turnover. The jobbers' gross margin per unit on fifteen fruits and vegetables in the New York area during 1923 was less than one-half that of the retailers', but a jobber handles about 1/700 of the total business and an average retailer about 1/10,000.

In still another direction one must be careful in interpreting percentage margins. When, for example, the margins of two types of retail stores are compared and found to differ by 2 per cent or 5 per cent, reflection will show that to the consumer the difference is even greater than first appears. A simple illustration will make clear the point. If two stores, A and B, are handling the same goods at a gross margin (in terms of the consumer's dollar) of 50 and 52 per cent, respectively, the difference to the consumer is 4 per cent instead of 2 per cent. Store A buys the goods for 50 and sells for 100. Store B buys for 48 and sells for 100. The difference is 2 cents in wholesale or cost value, which is 4 cents at retail.

$$.02 \div .50 = .04$$

Hence, when the cash-carry differential below credit-delivery is 4 cents out of every dollar, on an average

gross margin of 20 cents for the latter stores, as is found to be the case by the Harvard Bureau of Business Research, the saving to the consumer may be interpreted as⁶

$$.04 \div .80 = .05$$

In short, the difference (expressed in cents of the consumer's dollar) in distribution margins, between two types of stores merchandising a commodity, becomes significant to the consumer to the extent of the differential divided by the cost price of the commodity to one of the stores.

Further questions involving the fundamental concept of the consumer's dollar distribution are immediately raised. Does store B in the above example actually buy the goods cheaper than store A? If the actual unit prices in the two stores were averaged and compared, would the retail prices be lower in store A than in store B? When the price averages over a period are computed, it has been found that all combinations are possible. The relation of the average retail price of store A to that of store B is irrelevant, for the comparison of consumer dollar margins involves simply the relative spread between cost and sale price in each store. Theoretically, if all prices had been collected simultaneously and for varieties identical in grade, brand, size and condition, the store with the lowest margin would have the lowest retail prices. However, such identity cannot be achieved in practice. With fifty to one hundred brands and ten sizes of oranges quoted on a city auction market at slightly different prices, it is impossible to find identical fruit at fifty different retail stores. Moreover, in collecting quotations over a full season, the mean prices for two stores are influenced by the fact that one of them may cease to carry a

⁶ Bulletin 41, Harvard Bur. Res., 1923.

particular variety of produce during high price periods, thereby introducing a biased weighting. The gross margins, since they are simply computed differences between individual pairs of matched cost and sale prices, are not effected to such an extent by the period in which they are selected. To return to the original question, it may be said that the mean retail price for store A is not strictly comparable to the mean price at store B, because each represents a composite with different weights of time, grade and size. But for every dollar spent by the consumer, store A takes less for itself and pays more for the goods to the producer; or, looking at it another way and assuming that both stores buy at the same price, store A sells to the consumer for less than store B.

Agreeing, as we may, that the significance of margins depends largely upon care in collecting and interpreting them, to what use can they be put? Since the sizes of the slices into which the consumer's dollar is divided differ with time, place and commodity chosen, little can be said of "the spread" between farmer and consumer. Happily, however, the variance itself furnishes an opportunity to discover by comparison and correlation the causes of high and low margins, and thus it throws light upon possible means of reducing them.

For the last two or three years the Bureau of Agricultural Economics, in conjunction with the New England Research Council at Boston and the Port Authority at New York, has been studying the size and variance of city distribution margins on perishable foods. The high cost of retailing perishables has been variously ascribed to excessive wastage and spoilage, to the intense competition of many small store units, with resulting lack of efficient buying and management and

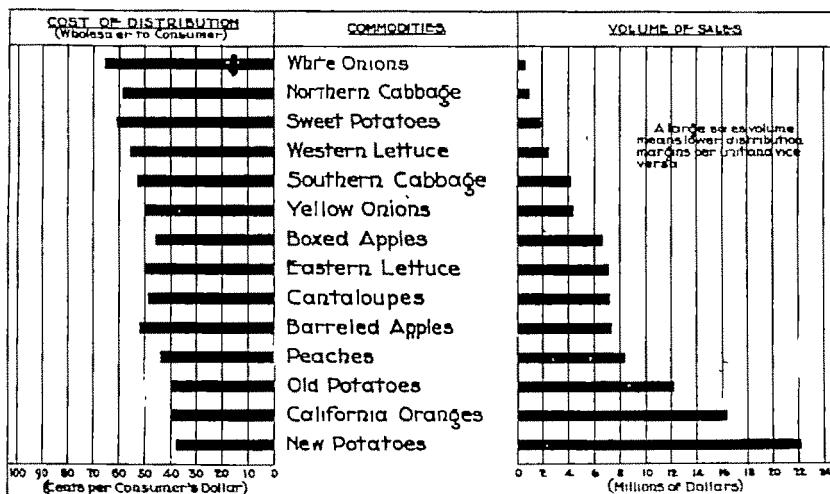
insufficient volume of business, to the increased service of credit and delivery, to the small unit of purchase by consumers. Can these hypotheses be tested and evaluated?

At Boston one analyst sought to measure the degree of risk from spoilage and extreme price fluctuations in handling a commodity by computing the quartile deviation of the margins for each variety. He assumed that a wide variability indicated greater risk. In New York the market research staff has established some significant relation between the volume of business and the size of margin for fourteen perishable varieties. Wide differences in size of commodity margin seem to be largely explained by the relative volume of business furnished by each, as shown in the accompanying chart.

A similar conclusion for foods other than fruits and vegetables may be drawn from the figures gathered by the New York Federal Food Commission. The cost studies of the Harvard Bureau of Business Research indicate that this element of volume of business may apply not only to variations in margins between commodities but between stores as well. When this hypothesis has been fully tested we may have a really accurate gauge of the economic limits of competitive merchandising, a sound answer to the question of whether the average grocery of the United States can live on the business furnished by its seventy-two and one-half families.⁷

As a result of a nine months' survey in New York City, involving the assembling of more than 10,000 retail quotations, a series of differentials for type of store management, clientele, sales policy, and degree of specializa-

⁷ P. 206, Report of Joint Commission of Agricultural Inquiry, 1921, part IV, *Marketing and Distribution*.

COST-OF-DISTRIBUTION-AND-VOLUME-OF-SALES

tion has been worked out. If substantiated by a new series, covering seven months more and now in the process of analysis, some interesting conclusions with regard to the relative importance of centralized buying and management, credit and delivery service, and other elements which are assumed to increase the cost of distri-

bution, will be available. It is believed that by using the gross margin, as the resultant, against volume of business, value of unit commonly sold, per cent decay and shrinkage and the other elements, as joint causes, an answer can be given concerning the relative importance of each to the distributive problem.

Costs and Margins in Marketing

By JOHN D. BLACK and H. BRUCE PRICE
University of Minnesota

UNDER prevailing usage, margins include out-of-pocket costs, plus interest upon the proprietorship investment, plus depreciation and the like, plus proprietor's wages of management, plus or minus any conjunctural gains or losses. Costs, as distinguished from margins, may include simply the out-of-pocket costs and depreciation, or they may include the interest item in addition, the procedure in this respect depending more upon the bias of the accountants than anything else. In the economic sense, of course, proprietor's wages of management are as much costs as hired management or hired labor. And so is the interest on the investment. But in this article, which is to be principally a report upon the cost and margin studies as made in the field of marketing, the usage will have to be based upon practice rather than upon principle. The general practice in certain types of studies of the marketing of farm products is to consider interest on the investment as a cost, and also proprietor's wages of management, the reason given being that some of the marketing is by co-operatives, and co-operatives borrow practically all their capital from members or elsewhere, and hire practically all of their management. Costs as reported in such cases are, therefore, costs according to economic terminology rather more than according to accountants' terminology. The difference between costs and margins, according to this usage, is merely that margins include the conjunctural losses and gains due to price or cost changes, spoilage and waste and the like. In other types of studies, only interest on

borrowed capital is counted as a cost, and profits include return to the proprietor and the proprietorship investment. This applies especially to studies in costs of merchandising and conversion.

The term margin is also used in another sense, namely, that of the difference between prices in local, wholesale and retail markets. A substitute for it in this use is the term "spread." The term margin is also sometimes applied to the difference between purchase and sale price for a given commodity. Thus an elevator may have one "margin" for wheat, another for rye, another for corn, etc. In this sense, it is distinguished from "gross trading profit," which may include something more than the margin, as will be illustrated presently.

OBJECTIVES

In the last analysis, cost and margin studies in the field of marketing can have but one practical objective, namely, to lead to a reduction in the costs or margins associated with the rendering of a given amount or quality of marketing service. There are, however, at least three approaches to this goal by way of cost and margin studies. One of these is to work out the cost-structure at any given time, discover the variations in costs, both in the aggregate and by cost categories and by processes, as between different business units at any given time, and thus as a result of actually seeing how some business units have kept their costs low, point out how other business units may reduce their costs in the future. This method means the making of

cost studies with a view to discovering from them the best kind of marketing organization and management.

An approach somewhat related to this is to set up some sort of costs as standards for the various business units to attain to as norms of reasonable accomplishment, and by this means improve the practice of the more inefficient. The only norms ordinarily set up, however, are simple average costs, which must perforce include as much bad practice as good practice. Furthermore, if production standards are to be useful for a period of years, they must separate physical data from cost-rate data, so that they can be corrected whenever cost-rates change.

Another approach is that of determining if possible what costs or margins are "necessary" or reasonable, and using this information in publicity campaigns or various related ways as a means of forcing or inducing middlemen to reduce their margins. Studies of variations in costs among different middlemen have little value for such purposes. They merely show a range in costs, and do not in any way indicate what costs are necessary or reasonable. The "bulk-line" analysis is nearly futile for such purposes—it simply restates the query in other language. The best that can be said of such studies from the point of view of necessary costs or margins is that sometimes they show costs or margins that obviously are higher than is reasonable. The more promising attack is to analyze variations in costs and margins over a period of time, discovering to what extent the variations from month to month or year to year are due to changes in cost-rates for labor, equipment, supplies, rent and the like, or to variations in turn-over or utilization; and to what extent they represent lags or maladjustments between purchase and sale prices. Stud-

ies of this latter kind with such an objective have thus far proved of little immediate value so far as reducing margins are concerned, but they have helped us to understand how our marketing system behaves in various phases of the business cycle, and thus have had great scientific value. Of course, if some way could be found of forcing costs or profits down or up, when they are temporarily out of line, such results would be immediately useful. But there is a problem of control here which has not yet been solved.

Another objective in cost-of-marketing studies is frequently given much importance, namely, to secure information that can be used in bringing the public to realize that most of the present high marketing costs are really necessary, or in getting the consumers to co-operate in various plans for reducing costs along lines that require their co-operation.

A SAMPLE ANALYSIS—GRAIN

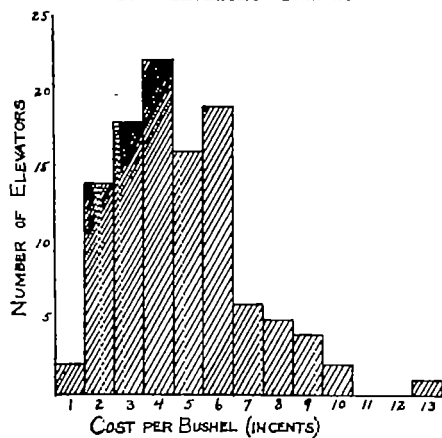
Obviously it will be impossible in this brief sketch to survey from the point of view of the foregoing objectives all of the cost or margin studies that have been made. What we shall do instead is to take one field as a sample and show in some detail how these objectives work out, and then very briefly summarize the rest. The field we have chosen is grain marketing, because more complete analyses are available in this field than in any other.

Variations in Costs of Country Elevators. Figure I shows the range and distribution of costs of 109 grain elevators in the Minneapolis-Duluth grain marketing area for the crop year of 1922-23.¹ The range was from less than 2 cents to over 13 cents per bushel.

¹ From a study made by the Division of Agricultural Economics of the University of Minnesota in co-operation with the U. S. Department of Agriculture.

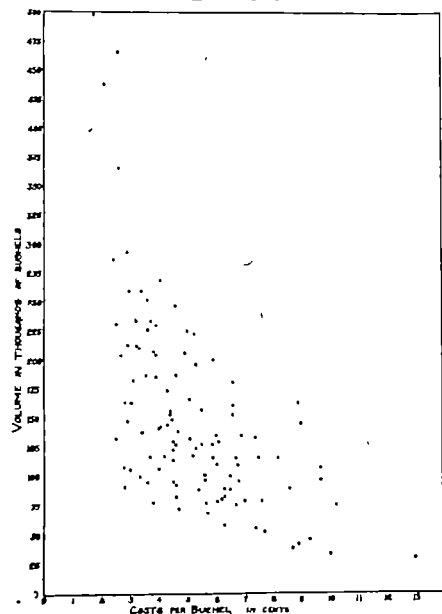
The average was 4.7 cents per bushel. Here, apparently, is abundant opportunity for a better economy in organization and management.

FIGURE I. DISTRIBUTION OF ELEVATOR COSTS
—109 ELEVATORS—1922-23



The first and most obvious cause of these variations in unit costs is volume of business. Figure II shows this general relation graphically. The decrease

FIGURE II. RELATION BETWEEN VOLUME AND
COSTS PER BUSHEL OF OPERATING FARMERS'
ELEVATORS



in cost with volume is rather rapid under 125,000 bushels, and gradual above this volume. The reason for this is that there is roughly a minimum-sized elevator building with a minimum of equipment and labor and management; and costs per bushel decrease until this minimum is economically utilized. Above this point, labor is increased, equipment is increased, buildings are enlarged somewhat, insurance and interest are increased, and particularly the salaries of management are increased. They are not increased, however, as rapidly as the volume, with the result that unit costs are apparently still decreasing at 500,000 bushels.

It cannot, of course, be argued safely from such evidence that all elevators should be larger and that there should be fewer of them. The reason that some elevators are handling so small a volume is that this is all the grain that is produced in their territory, and if the elevator were not there, the extra hauling cost to other shipping points would more than offset the extra elevator costs due to the small volume of receipts at this point. In many cases, however, one elevator at a shipping point, if properly equipped and manned, could handle all the business now handled by the two or three. If hauling costs could be determined, it would be possible to combine a curve of variations in hauling costs with volume with a curve of variations in elevator costs with volume, and so construct a curve of variations in the two costs combined. In most cases, such an analysis would show volumes of between 125,000 and 350,000 bushels, giving lowest combined hauling and elevator costs, the particular volume in any case depending more upon the density of grain production than upon anything else.

Although the variations in costs with

volume are most obvious, they are probably not the most significant. The 16 elevators with volumes between 100,000 and 125,000 bushels have costs ranging from 2.5 to 9.0 cents per bushel; the 12 elevators with volumes between 150,000 and 175,000 have costs ranging from 3.0 to 9.0 cents per bushel; and even the 15 with volumes between 200,000 and 250,000 bushels have costs ranging from 2.5 to 6.0 cents per bushel. To explain all these variations is the first task of such an analysis. Of course, there is not space enough for it in this article. One important reason for the variations is differences in the amount of management hired, or the quality of it, or in the salaries paid for the same grade of management. Thus the salaries of the managers for the elevators in the 135,000 to 145,000 group ranged from \$1475 to \$2317. Other causes of differences are difference in type of construction of the warehouse, in adjustment of size of warehouse to volume of business, in type of equipment, in completeness of equipment, in utilization of the labor, or in wages paid. Extra labor costs vary from \$207 to \$923 for the same group. Some elevators follow a close policy in providing the manager with clerical assistance, office supplies and equipment and the like; others are liberal in this respect. Differences in types of insurance carried produce a variation in the unit cost of this item of over 50 per cent. Different methods of financing produce wide variations in the cost of this item; some of these, however, represent differences in service rendered.

Building costs per bushel vary partly because not all elevators are equally well adjusted to volume of business, and partly because different grain marketing conditions permit different rates of turn-over of bin-space. The Federal Trade Commission's study

of 2,229 elevators in eight states showed an average turn-over of 3.9 times.² But the average for elevators handling corn and other grains was 5.3 times, and for those handling no corn, only 2.8 times. The marketing period for corn follows that for small grain and extends the period when the elevators are in full or nearly full use. On the other hand, increasing the number of small grains handled reduces the turn-over because it makes more bin-space necessary. Maladjustments of capacity to volume of business may be merely temporary, due to such things as a short crop and the like; or they may be the result of over or underestimating future receipts. In the former case, accurate accounting would adjust the changes each year to suit the volume received.

Another important cause of variation in costs, especially between elevators in different territory, is difference in types of grain handled, or proportion of different types of grain. Wheat costs, for example, are higher than oat costs, and flax costs higher than wheat costs.

Two things must be said about these variations in the several cost items. One is that some of them are high or low because others are high or low. For example, a high equipment cost may mean a lower extra labor cost, or vice versa. But there will be for any elevator a particular combination of labor and equipment that gives lowest unit costs—a combination with not too much equipment and not too much labor. There will be a similar least-cost combination of management and labor costs, of management and office costs, of power and labor costs, etc. The other thing is that some of the differences in costs, as already indicated in the case of interest, represent differences in the quality of service.

² Report on Grain Marketing, Vol. I, p. 120.

High salaries for management may be justified by the success of the elevator. High office costs may be justified by the better records and accounts that are kept.

The analysis of cost variations naturally resolves itself into two phases: one, that of variations in utilization of the cost elements, and the other, that of variations in the cost-rates. Thus it will be found that some elevators have high labor cost because they employ too much labor or utilize it poorly; and others because they pay high wages. Building costs will similarly vary, either because of differences in size of buildings or turn-over, or because of differences in type of construction involving different annual costs per cubic foot of bin-space. All costs can thus be separated into two functions, one the physical units of input, and the other the cost-rate per unit of input.

When such an analysis of variations in costs has been completed, it is possible, first, to point out all the reasons for high and low costs; second, to show how the costs of high-cost units can be reduced; and third, to plan new units in such a way that their costs will be as low as possible. From such an analysis, it is also possible to set up standards that are really possible of attainment, but which include very little bad practice. The standards will, of course, have to be different for different sets of conditions.

But which particular level of costs can be considered as necessary cannot, of course, be stated with any definiteness. In the first place, what particular quality of management can be considered necessary at any time?

Variations in Margins of Country Elevators. The average gross trading profit of these 109 elevators was 6.7 cents per bushel, or 2.0 cents more than the average cost per bushel. Table I

shows the range. Most of them are between 2 and 10 cents per bushel. These gross trading profits are not quite the same as margins, because they include income from sidelines and other sources, but they are nearly the same as margins and will be so considered in this analysis.³ The margins vary first of all because costs vary. In general, those with higher costs have higher margins. Second, they vary because of different marketing policies. For example, those that do not hedge are liable to realize large gains or losses. Third, those that mis-grade, mis-weigh, or mis-dock have either gains or losses in consequence. Fourth, certain types or grades of grain normally carry wider margins than others because of greater marketing risks or uncertainties.

TABLE I—RANGE AND DISTRIBUTION OF GROSS TRADING PROFITS OF 109 COUNTRY ELEVATORS, 1922-23

<i>Cents per Bushel</i>	<i>Number of Elevators</i>
Over 16.	1
14-16.	3
12-14.	4
10-12.	9
8-10.	14
6-8.	37
4-6.	26
2-4.	12
0-2.	2
Less than 0.	1
Total.	109

The range in net operating gains or losses is equally significant. Of the 109 elevators 21 had net losses ranging upward to 4.6 cents per bushel and 22 had net gains of 4 cents and over, ranging as high as 10 cents.

Year-to-Year Fluctuations in Costs of Country Elevators. Table II shows by

³ Included in this 6.7 cents per bushel is 1.7 cents per bushel of income realized from sidelines and from elevator services rendered grain patrons. It is proper to do this since nearly all their costs have been charged to grain handling.

separate items the costs of groups of elevators in separate years from 1918 to 1923. Only part of the elevators in these groups are the same from year to year, but the data are consistent enough to indicate that the sample each year is somewhere nearly adequate. There are two principal causes

1920 made the interest and insurance costs higher in those years.

Beginning with 1920-21, the elevators began to reduce costs. In 1921-22 the reduction is particularly apparent. The large volume of 1922-23 raised total costs again, but made low unit costs. The years 1918-19 and 1922-23

TABLE II—OPERATING EXPENSES OF SAMPLE GROUPS OF FARMERS' ELEVATORS BY YEARS, 1917-1923

Element of expense	Average per Elevator						All years
	1917-18 (12)*	1918-19 (31)	1919-20 (32)	1920-21 (46)	1921-22 (36)	1922-23 (111)	
Building and equipment	\$632	\$848	\$868	\$792	\$702	8917	\$793
Management.	1,498	1,770	1,871	2,279	1,987	2,151	1,926
General office.	554	696	868	704	860	1,015	788
Extra labor.	420	416	649	573	444	616	519
Power, light and heat.	246	297	346	396	308	367	327
Taxes.	215	142	253	268	291	210	230
Insurance.	514	544	717	553	340	445	519
Interest.	625	1,004	1,228	1,119	815	916	951
Direct sideline.	25	78	46	29	33	37	41
Miscellaneous.	217	257	230	268	121	156	208
Total.	4,980	6,052	7,076	6,981	5,901	6,830	6,302
Average bushels per elevator.	89,820	146,570	78,490	94,520	90,770	145,810	
Cost per bushel.	5.54	4.13	9.01	7.38	6.50	4.68	6.01

* Number of elevators in the group.

of the variations in total costs; one the variations in volume of business, depending upon the size of the crop, and the other, the variations in the prices of the cost elements. Volume fell from 146,570 bushels in 1918-19 to 78,490 bushels in 1919-20, and costs per bushel rose from 4.13 cents to 9.01 cents. But part of this rise in bushel costs was due to a rise in prices of supplies, in wages and salaries, in interest and insurance, etc., since even with the lower volume of business, the average operating expenses were \$1024 higher in 1919-20 than in 1918-19. The higher prices of grain from 1918 to

are interesting to compare. With the same volume of business, the bushel costs are over half a cent higher in the latter year. This is principally because management, general office, wages of extra labor, and power and light are apparently not back even to the level of 1918-19 in the country elevator business. Interest and insurance are lower because of lower values for grain. Miscellaneous and direct sideline costs have been pared considerably. Thus, although there have been appreciable reductions since the flourishing years of 1918 to 1920, when money was spent rather freely because

margins were high, the reduction process is by no means completed and may never be completed.

Year-to-Year Fluctuations in Margins of Country Elevators. Table III shows the gross trading profits of these same groups of country elevators by years, and also their net profits and losses.

short crops, as in 1917-18, 1919-20, 1920-21 and 1921-22, and especially in 1919-20. But market conditions are an even more important cause of fluctuation in margins. It was advancing prices that principally produced the margin of 15.0 cents in 1919-20, and declining prices that pro-

TABLE III—GROSS TRADING PROFITS, EXPENSES, NET PROFITS AND LOSSES, COUNTRY ELEVATORS BY YEARS 1917 TO 1923—IN CENTS PER BUSHEL

	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	All years
Gross trading profits...	8 8	5.9	15.0	2 4	7.8	6 7	7.8
Expenses.....	5 5	4.1	9.0	7 4	6 5	4 7	6 0
Net profits	3.3	1.8	6 0	-5 0*	1 8	2 0	1.8

* Loss.

In five years out of six, the elevators had an adequate net profit, and the heavy loss of 1920-21 was almost entirely offset by the large profit of the year previous. The net profits of 1918-19 and 1922-23 are really large when one considers the large volume of grain handled in these years. In general, margins are high in years of

duced the low margins of 2.4 cents in 1920-21.

In ordinary years, margins and expenses seem to be fairly well adjusted to each other, and leave a fairly regular net profit not far from 2 cents per bushel. Table IV, however, shows that there is a good deal of the accidental in this after all, for margins

TABLE IV—AVERAGE OPERATING INCOME OF FARMERS' ELEVATORS BY SOURCES OF INCOME—IN CENTS PER BUSHEL

Source of Income	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	All years
Grain Trading Profit...	6.5	4.8	11.5	1.1	6.0	5 0	5 9
Wheat	5.0	5 3	16.7	1 6	6 5	5.8	9.3
Durum	1.5	2.7	10.8	6.0	5.7	4.9	5.3
Flax...	22.0	8.9	4.8	-21 1†	6.2	8 8	4.9
Rye	9.3	4.6	9.0	3.2	5.5	4.4	6.0
Oats.....	6.6	4.7	7.0	-1 5†	4.8	2.8	4 1
Barley...	12 0	6.5	10.5	-4.4†	3.3	4 4	5.4
Corn...	-3.8†	-.1†	9.7	-1.7†	11.7	2.9	3.1
Sideline Trading Profit...	1.8	.7	2.5	.6	1.0	.7	1 2
Miscellaneous Trading Profit*	.5	.4	1.0	.7	.8	1.0	.7
Total Trading Profit	8.8	5.9	15.0	2.4	7.8	6.7	7.8

* Consisting chiefly of income from elevator services.

† Loss.

vary greatly from year to year for different kinds of grain. Thus, after throwing out the abnormal years of 1919-20 and 1920-21, flax margins vary by years from 6.2 to 22.0 cents per bushel, oats from 2.8 to 6.6 cents, barley from 3.3 to 12.0 cents, and corn from -3.8 to 11.7 cents. It is only the circumstance that these elevators handle several kinds of grain that keeps their average margins somewhere nearly regular—this and the fact that wheat, the main crop of this region, has rather regular margins. In a major corn-growing region, no doubt corn margins are more regular than indicated here.

Variations in Central Marketing Costs and Margins. The two principal types of business units operating in the central market for grain are the commission firms and the terminal warehouses. If data were available, each of these could be analyzed; first, from the standpoint of variations in costs and margins at any time, and second, from the standpoint of year-to-year fluctuations in costs and margins. The only data available are the Federal Trade Commission averages for a group of six terminal elevator companies for the years 1912-13 to 1919-20, as given in Table V following. If the interest item

TABLE V—GROSS TRADING PROFITS AND EXPENSES (INCLUDING INTEREST) AND NET PROFITS OF SIX MINNEAPOLIS TERMINAL WAREHOUSES, 1912 TO 1920 *
(Cents per Bushel)

	1912-13	1913-14	1914-15	1915-16	1916-17	1919-20
Gross trading profits	6.7	7.1	11.1	7.2	13.7	19.1
Expenses.....	4.2	4.7	7.1	4.9	8.5	12.8
Net Profits..	2.5	2.4	4.0	2.3	5.2	5.3
Bushels handled. .	15,469,327	15,069,741	11,329,736	9,995,277	7,434,082	8,771,448

* Derived from the report of the Federal Trade Commission on the grain trade, Vol. IV, p. 163.

What values there are in studies of year-to-year fluctuations in margins and costs should now be apparent. If margins or net profits are unusually high or low at any given time, the presumption is that a maladjustment has developed which will right itself in time, but which righting can perhaps be hastened if it is understood, or especially if some means of control can be developed. Or any particular costs which are out of line at any time can be handled in the same way.

Year-to-year fluctuations also serve to point out occasional opportunities for improving marketing organization and management and thus reducing costs—but for such a purpose they have a rather limited usefulness.

had been excluded from both receipts and expenses, the net profits would have averaged about a cent per bushel more, but part of this one cent represents costs of funds borrowed to finance the companies' own operations, as distinguished from the financing of country elevators or mills. The gross margins are higher than those of country elevators. One of the reasons that they are so high is that they include the cost of a great deal of storage of grain, Minneapolis being a consuming center. The net profits, according to the Federal Trade Commission's figures (pp. 166-9) represent an average return for the period of about 19 per cent on the stockholders' investment, the lowest year, 1915-16, being 10.8

per cent. The principal cause of variations in costs from year to year is volume of business. Changes in the price of grain also affect the interest item pronouncedly. This is especially noticeable at the high prices of the 1919-20 crop year. The rise in wages and other related costs from 1917 on also increased the costs noticeably. Margins were increased at the same time, partly because of higher interest receipts per bushel on funds advanced to country elevators, partly because charges for elevator services—storing, cleaning and the like—were increased, and partly because of larger profits on merchandising operations. If space permitted, the variations from year to year in each source of income and each expense could be analyzed in detail. But this would not take the place of a study of the variations in each of these items for different terminal elevators in any one year. Such an analysis would show the costs of different elevators varying because of differences in utilization of storage capacity, equipment, labor, etc., and because of differences in the cost-rates for each of these items. Volume of business or turn-over would of course be a major item in utilization.

If the commission business could be similarly analyzed, it would be found that although margins are nearly the same for all in any one market, being largely fixed for them by the grain exchanges, costs would vary considerably for reasons that could largely be determined. The average margins in the Minneapolis market in 1922-23 were roughly as follows (in cents per bushel): wheat, 1.5; rye, 1.5; oats, 0.6; barley, 1.0; flax, 2.4; corn, 1.0. Margins have changed since 1912-13 because the commission charges have been changed. They are now on a percentage basis with maximums and minimums per bushel. Since 1920, the

minimums have been generally applicable. The rising costs that warranted the increased commission rates were chiefly those of wages, salaries, rent, and especially those of the traveling done by their solicitors.

Inter-Unit Organization in Relation to Its Effects on Costs. The whole large problem of the inter-relationship of different types of marketing units, of local and central and retail units, and different types of central units,—of the division of functions between them, of their integration and control—can be attacked from the standpoint of comparative costs and margins. A cost analysis, if properly made, may be one of the most effective ways of determining relative degrees of economy and waste in various systems of integration or lack of integration. Experience has shown, however, that such comparisons are fraught with great difficulties. Some of these difficulties are illustrated by the following:

A type of integrated marketing organization is the line elevator. The Federal Trade Commission's data on comparative costs of line and non-line elevators are not conclusive because of the large difference in volumes handled by the two. An analysis of individual items of expense shows that the line elevators realize some economies in centralized specialized management. Building and equipment costs are less because the elevators are less expensively equipped and constructed. Salaries are less, even when salaries in the central office are included. In particular, the direct costs of insurance, taxes on grain, interest on grain and sideline, heat and light and power are reduced. All of these savings are probably accomplished with no loss in the quality of the marketing service—perhaps even with some gain. On the other hand, the line houses are at a distinct disadvantage in securing busi-

ness in competition with businesses locally owned and operated, and in consequence are probably doomed to handle a smaller volume, which will make their unit costs higher.

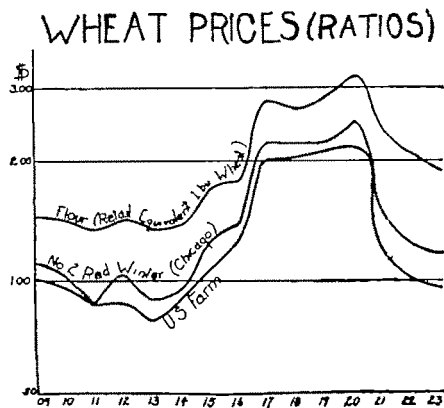
Another type of integrated organization is the wheat pool. The costs of the wheat pool of the Southwest Wheat Growers' Association in 1922-23 were 14.6 cents per bushel; of the Nebraska pool for the same year, 17.1 cents; and of the North Dakota pool, 13.7 cents.⁴ To make the figure for the North Dakota pool comparable with costs for elevators selling through commission merchants, a total of 3.8 cents per bushel must be subtracted to cover deductions for reserve, farm storage allowances, and the like. The 9.9 cents per bushel remaining may be compared with 7.75 cents per bushel, the gross trading profit of the farmer and line elevators of the same year,⁵ except that a little additional selling and testing service was furnished with the wheat pool. A detailed study of the separate items of cost for this and other wheat pools might indicate what the possibilities were in reducing costs. But the comparison of prices obtained would still have to be made. No one year or even several years of price comparisons will determine which method of selling secures better prices.

Margins Between Producer and Consumer. Studies which are easier to make are simple comparisons of movements in local, central and retail market prices. Figure III is such a comparison of farm and central market prices for wheat and retail prices for flour.⁶ The "spreads" between these prices cannot ordinarily be interpreted as "margins," for the reason that the grades are seldom strictly comparable,

and the market areas may be different. The comparison intended is simply of movements of prices in the various markets—the curves are to be understood only as indices of change. So understood, Figure III shows farm prices at present low relative to central market prices, and not showing any sign of catching up with them; flour prices high relative to both, but falling steadily—the spread narrowing 11 cents during the year 1923. The total spread was greater in 1921 and 1922 than in any previous period back to 1909. The high freight rates now prevailing are mostly responsible for the present large spread. It is this that keeps farm and central market prices so far apart. Middleman and commission costs between the central market and the consumer seem to be decreasing.

FIGURE III. CHANGES IN WHEAT AND WHEAT PRODUCTS MARGINS FROM 1909 TO 1923

(Prices are given on logarithmic scale)



Another type of analysis of this same sort is that illustrated by Table VI following. A bushel of wheat for which the farmer receives \$.97 is traced through various hands to \$5.96 worth of bread in the hands of the consumer and the margins or charges taken at each stage determined. Or the procedure is reversed, as in the second

⁴ Agricultural Co-operation, April 21, 1924.

⁵ U. S. Tariff Commission, *Wheat and Wheat Products*, p. 13.

⁶ The scale is logarithmic.

column, and the bread for which the consumer pays one dollar is traced back to the grower, and margins or charges indicated at each stage. As individual studies, made once and not repeated subsequently, their principal value is in giving a properly balanced sketch of the marketing process for this commodity, and thus suggesting where results can be obtained from further work directed specifically toward reducing costs. If studies of this kind can be repeated and kept up-to-date, they will have the usual value of ordinary year-to-year margin studies, and the additional value of greater precision and detail.

transportation costs from the costs and also deduct them from the consumer's price. The percentages obtained for the other margins on this basis are not percentages of actual consumer's prices, but rather indices of relative marketing costs or margins by commodities. On this basis, the margins for wheat used in bread are as follows: marketing, 18.4; conversion, 65.2; total, 83.6. The grower's index is 16.5. Perhaps the simplest way to describe these indices is to say that they represent the percentage division of what is left of the consumer's dollar after he has paid for transportation.

It will appear in the next section that

TABLE VI—MARGINS TAKEN BETWEEN THE NORTHWESTERN WHEAT GROWER AND THE CONSUMER OF BREAD IN MINNEAPOLIS, 1922-23 *

	What becomes of a bushel of wheat	Distribution of the consumer's dollar
Received by farmer	\$.97	\$.162
Country elevator's margin	.058	.010
Freight to Minneapolis	.12	.020
Commission, selling, etc.	.018	.003
Miller's margin	.41	.068
Baker's margin	3 42	.570
Retailer's margin	1.00	.167
Consumer's price	5.96	1.000

* Based partly on a preliminary report on retail prices of bread in seven cities, issued by the U. S. Department of Agriculture in February, 1924.

One difficulty with such analysis is that the results for different commodities or the same commodities in different markets are not comparable because of differences in the length of the haul to market. In the illustration chosen, the flour haul has been eliminated by having the bread consumer in the city in which the flour is milled. Oranges are hauled anywhere from a few miles to clear across the continent. The average haul for strawberries is less than for lemons. One way of escaping from the difficulty is to omit

most of the studies thus far made in the field of costs and margins have been of this latter type. They have been of great value in helping us understand the marketing process, and we can afford to have still more of them made; but after all they represent only a beginning—most of the real work is yet to be done.

SURVEY OF MARKETING COST AND MARGIN STUDIES

On the whole, probably the most ambitious study thus far made of

marketing costs and margins is the survey made by the Joint Commission of Agricultural Inquiry in 1921 and reported in its Part IV, called *Marketing and Distribution*. Although this is principally a study of margins, the wholesale and retail margins are split into costs and profits, and conversion and certain other costs are split into two or more categories. The report divides the field into four parts: first, marketing as far as the central market or the converter; second, conversion; third, wholesaling; and, fourth, retailing. All the inquiries cover a period of years. The first part presents margins for three selected years, 1912-13, 1915-16, and 1920-21. The other three parts cover the year 1913, which is the base-year commonly chosen for comparative studies, and then the whole period from 1916 to 1921. The Commission very wisely did not attempt to make a complete summary of marketing margins and costs. Instead, it selected typical commodities, and typical grades of these commodities, and typical hauls and typical markets, and obtained the data for these alone. In some cases, however, as with fruits and vegetables, and some of the wholesaling and retailing analysis, these several typical cases are combined to give summary figures which it is believed fairly represent the whole group of which they are a sample.

One of the difficulties in using the data of this report is that one cannot in many cases tell which items have been included under costs and which under profits. Presumably profits include returns on proprietor's services and invested capital.

There is no attempt made to present variations in costs between different business units. It was not the purpose of the Commission specifically to show how costs could be reduced, but rather to discover "the cause of the wide

difference between the price of agricultural products paid to the producer and the ultimate cost to the consumer" (page 14). The studies show well how the consumer's dollar is divided between the various marketing agencies, but they do not bear on their face many indications as to which of these margins are necessary. In fact, the most obvious conclusion to be drawn from the data is that if the margins of 1913 were justified, then surely those of 1918 to 1921 are justified, for in most cases they represent a smaller percentage of the consumer's dollar.

Federal Trade Commission. A study of similar kind, although in more detail in a special field, is that which is published in Vol. IV of the Federal Trade Commission's report on the grain trade. This also is avowedly a study of profits and margins with a view to determining whether or not the profits are unreasonable. There are really two methods of attack on the problem. One is to compare margins and profits of the different years from 1913 to 1920. The other is to compare the margins and profits of different types of middlemen, for example, of co-operatives, independent and commercial line elevators. It is found that the co-operatives are doing business on lower margins than the others, and it is therefore recommended that more grain be handled co-operatively. Probably it is also to be implied merely from the largeness of the profits in a number of cases that they are unreasonable. One of the most valuable parts of this study is the analysis of causes of variations in costs from year to year (pages 22-39). One of the difficulties in using the data is the complication of hedging losses and gains. Another is that the groups compared are not always properly comparable.

The whole report of the Federal Trade Commission on profits and

margins in the grain trade is in three parts; the first part dealing with the country elevator, the second with terminal elevators, and the third with total margins between producer and consumer, the consumer in this case being the miller or exporter or feed dealer.

U. S. Department of Agriculture. The U. S. Department of Agriculture undertook its first important studies in this field about six years ago. Most of the data obtained the first two years were not in such form that they could be published. The late Secretary Wallace came to his new task just at the time when the public was firmly convinced that the middlemen were holding up consumer's prices. He therefore became interested at once in costs and margin studies. The first studies made were trends of farm, wholesale and retail prices for all the important farm products from 1910 to 1920 (see Figure III, page 193). Very shortly, however, a new section was created, called *Cost of Marketing*. Projects were undertaken in several fields, particularly livestock, grain and potatoes. Thus far no cost data have been published except a few releases, and these have not been of great value. Meanwhile, the section is shifting its energies more and more to margin studies. Releases have been published covering margins in cotton and cotton cloth, potatoes, wheat and bread, milk and meat. These cover only a single year's business, and must be described as principally giving the facts as to what the margins are at the time, and how they are split between different middlemen agencies. In general, they give little clue as to whether or not the margins are necessary, and contain few suggestions as to how margins can be reduced. The study of the retail meat trade in Chicago, Cleveland and New York, however, contains considerable valuable organization analysis.

The establishment of the special section on costs of marketing now appears to have been a mistake. Cost of marketing studies designed to furnish a basis for better marketing organization should be made by the men working in the field of marketing organization. The training required for such work is principally marketing and statistics with a small amount of accounting. Commercial cost accountants are of little use for such work except to help with the details. The margin studies are really price studies and should be made by the division in charge of price statistics, in close co-operation, of course, with the workers in marketing organization. Studies of both of these types are now being undertaken by various divisions in the Bureau of Agricultural Economics interested in marketing organization or price statistics, usually in co-operation with state experiment stations. Some results are already available in cotton, grain and butter.

State Experiment Stations. The following does not purport to be a complete survey of the research work on marketing costs and margins completed or in progress at the various state experiment stations; nevertheless it covers most of the important studies. Many of the studies are in co-operation with the U. S. Department of Agriculture. It has not been possible to indicate this fact in most cases.

California has a project under way on the margins in fruits and vegetables in the Berkeley market area. North Dakota is co-operating with the U. S. Department of Agriculture in a country elevator study which should give some cost data and permit an analysis of some of the causes of variations in costs between elevators. A dairy products marketing study under way should also give data of a similar sort. South Dakota, Nebraska and Missouri

have made limited studies in the costs of marketing livestock. The Missouri study is principally a comparison of margins when selling to local buyers and costs when selling through shipping associations. These livestock studies were part of the general project initiated in this field by the cost of marketing section of the U. S. Department of Agriculture, the results of which were published in the release previously mentioned. Texas is co-operating with the U. S. Department of Agriculture in a study of local marketing costs of cotton, and has completed a study of picking, hauling, ginning, yardage and insurance costs of cotton. It remains to be seen whether these studies will simply give cost data, or will use cost variations as a basis for suggesting improvements in organization and management.

The Kansas studies give costs in marketing butter, in marketing milk in six Kansas cities, and in some phases of wheat marketing. These studies principally content themselves with presenting averages, although the milk study gives highs and lows for each item, makes a number of suggestions as to how costs can be reduced, and compares average costs of different types of distributors. The butter study gives average costs of marketing through local creameries and through centralizers and itemizes the costs of centralizers. None of these studies analyzes variations in costs between business units in such a way as to show how costs can be reduced.

The Iowa studies are all in progress, although some data will shortly be available. They cover costs in livestock and grain marketing, and costs of local creameries. When published, they will undoubtedly analyze cost data mostly from the standpoint of variations in costs as furnishing a basis for suggestions for better econ-

omy in organization and management.

Minnesota has completed studies in the costs of local creameries, local potato warehouses, and local shipping associations, and is carrying on studies in the costs of local elevators, retail stores, and livestock and grain commission merchants. Much of this work is in co-operation with the U. S. Department of Agriculture. These studies are made almost solely from the standpoint of economy in organization and management. The emphasis is principally upon variations in costs between different business units in the same field.

Wisconsin's costs of marketing studies, mostly made between 1913 and 1917, cover potatoes, cheese, butter, milk and retail stores. There is also one study of the conversion costs of canned peas. The studies are essentially general marketing studies, but in each case an attempt was made to split the consumer's dollar between the various middlemen agencies. The cost and margin data are therefore in the form of averages. What suggestions there are for better marketing organization are therefore not derived from cost analysis. The study which comes nearest to analyzing costs from the standpoint of economy in organization is the one on retail stores.

The Cornell studies in this field were begun only recently and nothing has been published thus far. They cover potatoes, the local marketing of apples and milk, and local feed stores. It remains to be seen whether when published they will be studies essentially in costs, as most of the Cornell farm cost studies have been, or studies essentially in marketing organization.

The New England Research Council is a voluntary co-ordinating council of the various agricultural economic research agencies in the New England

States co-operating with the U. S. Department of Agriculture. Included in the council are the several state experiment stations in the region, the Massachusetts Department of Agriculture, several chambers of commerce, and the Harvard School of Business Administration. The studies thus far completed are all margin studies. As margin studies, however, they are more carefully analyzed than most of such studies. This is particularly true of two studies: one, of the reasons for differences in the retail margins taken on 12 different commodities by 6 different retail stores in the Boston market, and the other a similar study of jobbers' margins in the same market for two commodities, onions and strawberries. Reasons for differences in margins when thus carefully made virtually amount to reasons for differences in costs. Such studies do not, of course, point directly to better marketing organization and management; but they do throw considerable light upon the problem, for some of the reasons for differences in margins between different commodities and different stores are also reasons for differences between costs of stores of the same type handling the same commodity.

One interesting feature of some of these margin studies is the attempt to show variations and ranges in margins from day to day. Such analysis helps to explain the way in which the market-price mechanism works.

Only one of the studies attempts to determine costs. This is a study of the relative costs of transportation by rail and by truck.

Another study compares push-cart vendors' prices with retailers' prices.

The Massachusetts State Experiment Station, in addition to its work in co-operation with the New England Research Council, has in progress special cost of marketing studies for

apples, tobacco, onions and potatoes. It is not clear at this time what the objectives in these studies will prove to be.

A few other stations in the East have done a little work in this field, particularly Ohio, Pennsylvania, New Jersey and Maryland.

Research bureaus, especially those of the Harvard School of Business Administration and of the Northwestern University School of Commerce, have made cost studies in the field of merchandising, especially in the field of retailing. Some of these studies have emphasized the variations in costs and margins from month to month and year to year. Others have emphasized variations in costs between business units. Their analysis of the latter phase of the problem is by no means exhaustive.

Trade Associations. Several trade associations have made studies of the cost of marketing in their own fields. Their object is partly to educate the public to appreciate that their margins are necessary, and partly to help out their backward members. One of the best of these studies is that made by the National League of Commission Merchants of costs in the wholesale distribution of fruits and vegetables.

SUMMARY OF RESULTS

The foregoing survey of marketing cost and margin studies makes it abundantly clear that the principal thing that has been accomplished by them thus far is to furnish us with a clearer sketch of the marketing process. Most of them have been directed to the end of answering the question, "Who gets the money?" Recently, however, a number of studies have concerned themselves with movements in costs and margins in the various phases of the business cycle, with long-time trends in marketing costs; and the

results already obtained working along this line promise more valuable results in the future.

The most important phase of marketing cost and margin studies, namely, the economy and efficiency phase, has been by far the most neglected. There always have been attempts made to compare different marketing methods or systems in this respect, but very little that is really conclusive has been learned in this way. The difficulties of such comparisons are often unsurmountable. Even if costs can be compared, which in itself is usually very difficult, the amount and quality of marketing service rendered for the money cannot be compared. It is also frequently assumed that "average" costs, such as commonly computed, have great value as standards of reasonable attainment. As already pointed out, their value in this respect is decidedly limited. The most promising attack on the problem, namely, analyzing the costs of many units of the same general type to discover the most economical organization and market practice, has thus far been followed by only a few research agencies, particularly the research bureaus, a few experiment stations, and in some very recent studies, the U. S. Department of Agriculture. A summary of the studies thus far made would, therefore, be principally a summary of answers to the question, "Who gets the money?" These answers can be assembled and averaged in various ways. But the averages are not very significant, and they do not really represent anything in particular. The reason for this is that they are derived in different ways, represent dissimilar conditions, or include different things. In particular, transportation costs have been included in all of them, and these, of course, vary greatly according to the length of haul.

To illustrate these facts, in the following paragraphs are brought together a few general statements about margins on a number of principal commodities or groups of commodities.

The middleman margins, local and terminal markets combined, obtained by the Commission of Agricultural Inquiry, average per bushel on grains for the years 1912-13, 1914-15 and 1920-21 combined, as follows: wheat, 9.3 cents; corn, 9.6 cents; oats, 3.1 cents; barley, 6.4 cents. The Federal Trade Commission's margin on grains average for the years 1912-17 and 1920-21 combined, as follows: wheat, 11.4 cents; corn, 7.3 cents; oats, 7.0 cents. This illustrates the general lack of comparability in the available margin data. The Federal Trade Commission's figures probably represent the best comparison by types of grains; but they are all too high, probably because of assuming that all grain passes through terminal elevators, and also that most of it is stored there.

If the Commission of Agricultural Inquiry's margins are reduced to percentages of terminal market prices with the transportation margins eliminated, the comparison is as follows: wheat, 7.8 per cent; corn, 11.1 per cent; oats, 8.4 per cent; barley 11.9 per cent.

The middlemen margins (county elevator, terminal market, wholesaler and retailer combined) included in the whole marketing process from producer to consumer, on a number of food products made from grains, as obtained by the Commission of Agricultural Inquiry for the years 1912-13, 1915-16 and 1920-21 combined, were as follows, expressed as portions of the consumer's dollar: bread, 22.5 cents; corn flakes, 32.9 cents; rolled oats, 32 cents. But the U. S. Department of Agriculture's data on margins on bread sold in seven cities assign the

same middlemen only about 15 cents on the dollar. For all the commodities, the selling costs of the manufacturer are greater than the margins of the middlemen proper.

The central market margins on livestock in 4 markets, according to data obtained by the Commission of Agricultural Inquiry, averaged per hundredweight as follows in 1920-21: cattle, 15.6 cents; hogs, 18.7 cents. These represent 2.2 and 2.1 per cent respectively of the terminal market prices. Including three more markets for cattle raises the average to 16.9 cents for cattle. The central marketing costs of the co-operative selling agencies in Chicago, Kansas City and Fort Worth average 2.4 per cent of the terminal selling price. The markets included being different, the two sets of results are not comparable.

No good data are available on costs in the local markets. The local expenses of all the livestock shipped by 146 Minnesota livestock shipping associations in 1917 were 9.5 cents per hundredweight, as compared with 19.6 cents per hundredweight in the central market. In 1919, the local costs had risen to 12.0 cents per hundredweight.

The Commission of Agricultural Inquiry divided the dollar spent by the consumer for fresh beef in 1920-21 as follows: middlemen (retailers and terminal market, and not including local market) 26.5 cents; packers, 5.8 cents; transportation of livestock, 3.6 cents; shippers, 67.7 cents. For 1912-13, the comparable figures were: middlemen, 14.3 cents; packers, -7.5 cents; transportation of livestock, 2.6 cents; shippers, 90.1 cents. The amount assigned to the packer is the excess of his margin on the beef over the value of the hide and other by-products. Thus, in

1912-13, the by-products sold for 7.5 cents more than the packer's margin on the beef.

The studies of the U. S. Department of Agriculture assign to the middlemen (country buyers and city distributors) for the year 1922-23, the following portions of the consumer's dollar: Maine potatoes, 66 cents; Minnesota potatoes, 76 cents; Wisconsin potatoes, 71 cents; Michigan potatoes, 73 cents; southern potatoes, 70 cents.

A special study made by the New England Research Council on Maine potatoes sold in Boston in 1920-21 assigns 25 cents in every dollar of the consumer to the retailer, 6 cents to the jobber, 6 cents to the wholesaler, and 5 cents to the country dealer (transportation omitted).

The costs of 72 local potato warehouses in Minnesota in 1922-23 averaged 21.3 cents per hundredweight, this including cost of sacks and also a considerable amount of direct selling in carlots.

The New England Research Council's study of Connecticut Valley onions marketed in Boston assigns 58 cents in each dollar of the consumer to the retailer, 3 cents to the jobber and wholesaler, and 9 cents to the country dealer (transportation omitted).

The California Fruit Grower's Exchange divides the consumer's dollar spent for oranges in 1920-21 as follows: middlemen (wholesaler and retailers), 35.4 cents; transportation, 21.5 cents; harvesting, packing and selling by the Exchange, 12.4 cents; grower, 30.7 cents.

The foregoing is a fair sample of the sort of data which are available, and from it we may judge the value of the whole.

The Extent of Co-operative Marketing Among Farmers Today and the Results Secured by Co-operative Associations

By BENJAMIN H. HIBBARD
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THE growth of co-operative marketing in the United States during recent years is noteworthy. Beginning soon after the close of the Civil War co-operative marketing has had a rather checkered career. For about thirty years, ending in 1901, co-operation was strictly in the experimental stage. The greater part of the development, such as there was, came from the Grange or Farmer Alliance inspiration. So far as number of companies was concerned there was a considerable showing made during these years, and in not a few instances the results were gratifying. The real trouble was a lack of acquaintanceship with the working principles of co-operation. Almost anything embodying the sharing of profits among a group bent on effecting savings will work so long as the enthusiasm is at its height. All manner of gaps in the way of business weaknesses may be bridged temporarily by the combined efforts of the interested parties. In the early co-operative undertakings there was no uniformity as to the ownership of stock; no adequate provisions for paying dividends on any basis other than that of stock owned; no plan of voting except on the basis of stock. In short the co-operative companies were nothing other than corporations, the stock of which was mainly in the hands of farmers.

Furthermore, the co-operative companies of this early period in almost no instances had any business connection either adequate or safe from the standpoint of their aspirations and attain-

ments. Almost all of the companies established by farmers before 1901 were strictly local in their scope of operation. They were able when things went well to effect local savings in buying or selling, but they seldom or never developed any considerable amount of bargaining power, either by way of finding the best available market at the time, spreading sales over a season, or standardizing goods. It is, therefore, not surprising to learn that out of 5,800 farmers' companies reporting to the Bureau of Agricultural Economics the year of origin, but 8.6 per cent dated back of 1901. The greater share of all those which did report having had a beginning in this early period were dairy organizations, principally co-operative creameries and cheese factories. In both of these early types there was a minimum of co-operation present, yet it is altogether a mistake to suppose that the co-operation involved in these undertakings was not genuine or important. It was both.

During the second period, 1902 to 1911 inclusive, co-operation made a distinct growth, yet only a fifth of the 5,800 co-operatives date their beginnings during these years. The dairy organizations continued to increase, but the larger numbers added to the lists consisted of grain companies. These companies were substantially all local, held together by loose state organizations. The local companies did their own buying and selling as best they could. Hence, local evils were about all they were in a position to attack:

However, the circumstances were such that a great deal of coherence was developed by these companies. They learned, and part of them practised, rational methods of distributing the profits, better called savings, and the patronage dividend became prevalent.

In the third period, 1912 to 1921 inclusive, co-operation grew by leaps and bounds. There was a great increase in the isolated local companies, a great growth in companies with some form of federation, or at least of companies centering their trade in some common agency, as livestock shipping companies, mainly local, but with a co-operative commission firm to which shipments might be made. Highly centralized co-operatives also began to make their appearance. About a fifth (20.3 per cent) of the 5,800 companies began doing business during this period.

The time of most rapid development of co-operation, both in the number of companies organized and in the amount of business transacted, was from 1912 to 1921. Almost two-thirds of the 5,800 companies (65.3 per cent) concerning which the facts are available began during this period. The outstanding development in these ten years was in an expansion of the grain, fruit and vegetable, and especially the livestock marketing companies. In type there was a pronounced swing toward something more effective than the local group. The federation and the centralized plan both grew rapidly. The amount of business handled increased more rapidly than the numbers of the companies or the total membership. Such commodities as tobacco and cotton contributed greatly to the volume of business.

Since 1921, the growth of co-operative organization has been less rapid; only 5.8 per cent of the companies on which this analysis is based came into

existence during the two years 1922 and 1923. The year 1923 was the lowest in twenty years with respect to new companies. Possibly the time has come for a smaller increase in mere numbers of new co-operative companies, the field being occupied by those already established. However, this explanation hardly seems adequate in view of the vast amount of produce still marketed along old lines, and especially in view of the dissatisfaction felt respecting this method of marketing. Whatever the explanation there is apparently a halt in the movement toward more marketing companies established by farmers, though the amount of marketing co-operatively is still on the increase. This would indicate that the companies already in the field are holding their own.

SALES VALUES

The Census Bureau in 1920, for the first time, included in its schedule of questions an inquiry as to the number of farmers belonging to co-operative companies, and the amount of business, expressed in dollars, transacted. It was found that just about ten (9.7) per cent of all farmers belonged to marketing or purchasing companies. The business done by these members in 1919 amounted, according to the reports, to \$721,000,000 of sales and \$85,000,000 in purchases. Per member the sales equalled \$1,400, the purchases \$260. Thus the bulk of the co-operative work consists in selling farm produce, the sales being over five times as great as the purchases. There were, of course, many purchases and sales made co-operatively through informal associations and not here reported, since the inquiry pertained to membership in companies and the business done through them. Probably there is a considerable percentage of error in the reports, but they have

a real value, nevertheless, especially on the assumption that the inquiry will be repeated in future censuses, in which case, in spite of errors, trends will be discernible.

The Bureau of Agricultural Economics has estimated the amount of business done by farmers' companies in 1923 at more than two billion dollars. This is almost two and a half times the amount reported by the census for the year 1919. While the increase in business had been very great it is not probable that there actually was any such growth during the four years as these figures suggest. The Bureau of Agricultural Economics is without doubt the better authority.

The importance of the two billion dollar business may be appreciated best by comparing it with the totals involved in farmers' transactions. The aggregate value of crops and livestock products for 1923 was \$16,000,000,000, from which \$4,000,000,000, the value of crops fed, should be subtracted in order to give the net products, \$12,000,000,000. From this it will appear that the \$2,000,000,000 (the amount of the purchases, \$50,000,000, is negligible) co-operative business represents a sixth of the value of all products. In actual sales the co-operative business should be well over a sixth, since a considerable amount of the produce is sold at home without entering into the market at all. Thus the co-operative sales of nearly two billion dollars would represent not merely a sixth of the farmers' sales for the year but more likely a fifth.

It must be noted that in these co-operative sales there is involved every degree of co-operation from the least to the greatest. There is the small local creamery, cheese factory, potato warehouse, or "egg circle" doing perhaps nothing beyond assembling goods and performing some simple operation upon them in the way of

manufacture or grading, after which they are sent to the general market. Moreover there may be, and is, every sort of organization from the most informal to the most elaborate. Officers are paid all the way from nothing at all to high salaries. The goods handled may constitute an insignificant proportion of the whole supply up to three-quarters or four-fifths. In the case of the insignificant amounts such as are handled by a local elevator, creamery, or cheese factory, there is no effort at influencing the market itself, no such idea as "feeding" the market. On the contrary each unit sells when it sees fit, or when it can, just as does an isolated competitive unit of the usual type.

Large co-operative units controlling fifty, sixty or seventy-five per cent of the goods of a given kind take on some of the attributes of big business, study the market and decide when it is presumably best to make sales. The great majority of the co-operative companies are engaged in handling single commodities as the main consideration with others clustered about them as convenience suggests. Thus creameries occasionally handle eggs, elevator companies very frequently deal in seeds, twine, coal and salt. On the other hand, very few co-operative companies handle unrelated lines of produce simply because it is produced in the same general territory, or by a single group of farmers. It has been recognized for many years that one central line of interest is necessary in order to promote coherence.

PROGRESS

Judged by the amount of transactions in terms of dollars, over three-fourths of the co-operative business is done in the handling of grain, dairy products, livestock, fruits and vegetables. Following these come tobacco,

and cotton, all others being of minor importance. Grain marketing ranking first in value of produce handled, number of companies in existence, and membership, has made little progress beyond the local elevators established some twenty years ago for the primary purpose of correcting local evils. Certain other evils of a deeper nature were recognized but little or nothing done toward remedying them. A farmer-owned grain exchange was started in Minneapolis in 1908, and later moved to St. Paul. This company, not really an exchange, did a commission business involving some ten or fifteen million bushels of grain, but with indifferent and varied success. It is now in the hands of a receiver. A very ambitious program was recently launched by the American Farm Bureau Federation under the title, United States Grain Growers, Incorporated. The plan was designed to create a highly centralized organization with facilities for holding grain off the market and thereby influencing the price. It was a conspicuous example of organizing from the top down, the plan being made, not out of experience, but created as an ideal and imposed on the units below in finished form. It failed. In this connection may be mentioned the state-owned mill and elevator at Grand Forks, North Dakota. While not co-operative it is the result of a farmer uprising, the purpose being to do business in the interest of the farmer, outside of the regular trade.

While the amount of business in the grain trade done co-operatively is close to half a billion dollars, involving 332,000 farmers, the grain trade is still mainly in private hands. A recent attempt to carry the grain marketing a step farther has been made in the creation of pools, state-wide as a rule, handling some few million bushels of grain each. It has been, and still is,

the plan to increase the number and size of these pools and eventually unite them into a national pool of sufficient size to exercise price-making power. At present the prospect of such an outcome is not very flattering. The expenses of the pools have been higher than was expected and some of them are winding up their affairs.

Next on the list in the matter of sales comes dairy products. This is probably the oldest line of co-operation among American farmers. Instances of co-operation of this kind have been known for over half a century. As in grain marketing the main part of the dairy co-operation has been local. It was a feasible means of getting butter and cheese made, and so far as selling was concerned it was at least a good step ahead of the methods which it replaced. At present there are federations of co-operative creameries operating in at least three states, Minnesota, Wisconsin and Michigan. While these organizations are in their infancy they have excellent possibilities. That farmers can profitably carry their dairy products farther into the market is certain. An outstanding example of federation in the dairy field is found in the marketing of cheese. The Wisconsin Cheese Producers' Federation is handling 25,000,000 pounds of cheese per year; a similar though smaller federation is operating in Oregon; and another one is in process of organizing in the foreign cheese district of Wisconsin. These are important undertakings, yet the aggregate amount of cheese handled by the two federations now in operation is less than a tenth of the total amount for the country. The importance of the work of companies such as these is likely to outrun entirely the proportional share of the business to be done within the field. The steadying influence on the market; the feeling on the part of those concerned that they are getting all the circum-

stances will afford; the ease with which the co-operative business already under way may be expanded on occasion; all these give to the work of a co-operative company a significance beyond what it might seem to possess.

In the sale of milk co-operation has made much headway, and as a result there is some measure of co-operation at work in the bargaining of producers with distributors in and around most of the larger cities of the country. The total values mount rapidly in this line of business, not infrequently reaching \$5,000,000, or \$10,000,000 per city. While this is true, the degree of control attained by the farmers over the milk market is with few exceptions not great. The price is sensitive with respect to supply while the means of managing the supply are in most cases not adequate, and of controlling the output in the interest of price almost nothing. In this field co-operation is a means of getting what milk is worth in view of its alternative uses, whereas without co-operation there is a strong tendency toward inflexibility in prices with the farmer relatively at a disadvantage.

The most rapid rise of any type of co-operation is in connection with the marketing of livestock. Throughout the Middle West local livestock companies are found in great numbers, four, six or eight hundred per state. Livestock commission companies are operating at all the leading centers. This permits the co-operative handling of stock from the farm to the door of the packing house. The reports made by local companies indicate important savings. At the packing centers the co-operative commission organizations are able to return approximately half of the commission fees to the members. This aggregates millions of dollars but relatively is not very much, the total commission charges not amounting to any considerable share of the value of

the stock. Some ten years ago a widespread movement toward the ownership of packing plants by farmers was started. Almost without exception these ventures were failures. Hardly any of them are running as co-operative plants now and for the most part no important part of the capital subscribed was returned to the farmers at the time of winding up the business. While the co-operative packing plants have failed, the shipping of livestock co-operatively seems to have made a place for itself, and is likely to stay.

Fourth on the list in number of associations, but third in point of value of produce sold, come the fruit and vegetable companies. Here, more than in any other line, the success of co-operation grew out of dire necessity. The greatest of the fruit co-operatives are in the West. The distance from market; the perishable nature of the product; the tendency of markets to become glutted; all these conditions spelled disaster to the fruit grower under the conditions of twenty-five to thirty years ago. The most feasible way out of the difficulty seemed to be by way of co-operation. The success has been pronounced. Order and system have been introduced where before they were lacking and fruit has been made to pay where on the old haphazard method of operation it meant ruin. Almost a thousand fruit and vegetable companies report a business of over a quarter of a billion dollars a year.

Next in order of business done come tobacco and cotton. Both of these organizations are comparatively recent, and the amount of business done large. The claims concerning increase in price due to these companies are the most extravagant of any. No doubt there have been gains of genuine importance due to the co-operative handling of these crops. There was a wide gap between the prices received

by many tobacco and cotton growers and the wholesale price obtained soon after the first sale. Co-operation has resulted in giving to each a price corresponding to the quality of his product. A good observer of cotton marketing estimated in 1923 that the pooling resulted in an increase of two cents a pound over what would probably have been obtained without the pool. Less than a tenth of the cotton was sold through state pools. Whatever the facts may be as to the influence of the co-operatives on the price of cotton, it must not be forgotten that the crops for the years 1921, 1922 and 1923 were the shortest in a quarter century, not only in the United States, but for the world. The shrunken supply must have had something to do with the increase in price. Not far from half of the tobacco of the country has been sold during the past few years through co-operative companies. The claims of having doubled the price of tobacco is absurd. On the other hand, the marketing methods had been of the haphazard sort. Systematizing it meant bringing the unfortunately low figures up so as to make a reasonable, and a higher, average. There is no criterion by which to judge the increase in price of tobacco due to co-operation. It is, however, a significant amount.

BENEFITS

As noted above, incidentally there is a wide difference of opinion with respect to the benefits of co-operation. In most instances the measure of the advantage is difficult. Especially is this true where the co-operative company controls a large part of the commodity at any given market. In a case of this kind there is no definite comparison with what the goods would have brought without co-operation. On the other hand, a local co-operative, such as an elevator or creamery, can

show unmistakable evidence of gains and losses due to co-operation since the market in general has not been disturbed. This is no argument in favor of local co-operation as compared with a wider application of the principle. Still it is true that a local livestock shipping association may be able to compute its gains with accuracy, since the margins which would have been taken by private buyers are known, while the work of a co-operative commission company may show less definiteness as to advantage. The commission company may conceivably become a factor at the terminal market, in which case its gains or losses are problematical. At the same time the inferences may be convincing. No one doubts that the cranberry growers get more for the fruit through the co-operative sales than could otherwise be obtained. Neither is there doubt that the fruit growers of the West get more. How much more is a question admitting of no exact answer.

In general, it may be said that the marketing services may be performed more economically through co-operation than through private hands in all cases in which the produce is not well graded and standardized in a way comprehended by the sellers. Where grades are easily recognized local competitive buying is likely to result in a reasonably high price in relation to central market prices. This is true of choice fat stock. It is in connection with the stock not so easily classified that the savings through co-operation are oftenest made. Closely akin to the question of grades and standards is that of quantity. With few exceptions the seller with but a small amount of produce is at a disadvantage. This is the case with a large proportion of the midwestern wool growers. They have small clips of wool and therefore do not attract effective buyers capable of developing a satisfactory local market.

Hence the wool pools report, and show evidence of, important gains in price. Cotton and tobacco fall into the same class. The bulk of the sales are made by small growers who are in themselves weak bargainers. As a matter of fact the same situation obtains in most farm selling. Farming is a business of small units. Grain, cotton, livestock, butter, milk and fruit are each produced by millions of farmers. Merchants and manufacturers do business on large enough scales to permit the employment of expert purchasers and salesmen. The only method by which this situation may be matched by the farmers is through co-operation, the larger group thus developed having enough volume of business to warrant the employment of competent agencies for transacting business.

In view of the foregoing discussion it seems safe to say that the importance of the co-operative business done by farmers is quite beyond the proportional quantity of the transactions.

Co-operative companies have great possibilities in the way of education of members. The market ceases to be an unknown, unexplored, territory peopled by monsters, and becomes rather a route or highway, more or less direct, more or less perfect. Acquaintance with the route results in intelligent attempts at betterment, whereas ignorance concerning it is prolific of both criticisms and schemes mainly not pertinent. The organization of new companies while at a low ebb during the last year or two is by no means ended. The amount of business done co-operatively is on the increase and is not merely likely to continue to increase; it is sure to do so. The companies in existence are doing a larger business from year to year. The membership is increasing. The failures are growing fewer.

The following table gives the leading facts for 8,813 associations which reported to the Bureau of Agricultural Economics in 1923:

Type of Association	Associations		Estimated Business	
	Number	Per Cent	Amount	Per Cent
Selling:				
Grain	2,600	31.3	\$490,000,000	28.8
Dairy products	1,841	22.1	300,000,000	17.6
Livestock	1,182	14.2	220,000,000	12.9
Fruits and vegetables	956	11.5	280,000,000	16.5
Wool	93	1.1	3,000,000	.2
Cotton	78	.9	100,000,000	.5
Nuts	46	.6	12,000,000	.7
Poultry	40	.5	18,000,000	1.1
Forage	18	.2	2,000,000	.1
Tobacco	14	.2	132,000,000	7.8
General selling *	580	6.4	92,000,000	5.4
Miscellaneous †	59	.7	4,000,000	.2
Buying:				
Merchandise (stores)	479	5.8	32,000,000	1.9
Miscellaneous buying	377	4.5	15,000,000	.9
Total	8,813	100.0	\$1,700,000,000	100.0

* Selling small quantities of a large number of commodities.

† Broomcorn, maple products, honey, cane syrup, forest products, etc.

Financial Gains of Marketing Successfully Through Co-operation

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CO-OPERATIVE marketing organization is a very useful instrument for farmers. It enables a group of producers to secure more practical information and to act more intelligently in its use than is possible for the unorganized. It is not, however, a means of guaranteeing profits to anyone, nor of changing bankrupt agriculture suddenly into a profitable industry. Co-operation is a slow-working, evolutionary process of leading men to and through the doorway of organized endeavor as a means of solving difficult problems. For those who have stubbornly persisted in applying sound economic or business principles in their co-operative endeavor, there have been decidedly worthwhile results.

According to the experience and judgment of the old and well-established co-operative companies, there are eight principal kinds of co-operative benefits. These in turn are characterized as tangible and intangible. Those benefits which are subject to actual financial measurement are tangible. They stand in contrast with those which are intangible, owing to the difficulty of measuring them definitely in dollars and cents. Briefly stated, according to the foregoing classification, these eight proved benefits of successful co-operative marketing are:

I. TANGIBLE OR FINANCIAL BENEFITS

1. Gives farmers the profits of marketing that ordinarily flow to middlemen.

2. Reduces costs of marketing so far as practicable.
3. Improves old and devises new standards of marketing service.

II. INTANGIBLE OR NON-FINANCIAL BENEFITS

1. Readjusts standards of production.
2. Establishes farmer confidence in the marketing mechanism.
3. Gives farmers conviction that products are marketed in the most efficient way possible.
4. Stimulates and develops an agricultural leadership.
5. Helps to make marketing efficient farming profitable, and living worthwhile.

Of these eight benefits, the first group alone is the object of discussion in this presentation. All of these beneficial results of marketing co-operatively obviously have not been obtained by every farmers' organization nor have they all been realized by any company. Yet this classification brings together the actual gains of one kind or another for which the co-operative movement is chief sponsor. Every marketing organization has within it the possibility of bringing to its members most or even all of these advantages. That this is the case has been repeatedly demonstrated in the practical experiences of many co-operative companies.

It is the purpose of this presentation to point out some of the more reliable and definite facts which give

an idea of the size and importance of the financial gain of successful co-operative marketing organizations. These tangible or financial advantages are not more important than the less tangible or non-financial advantages. They are however of much greater appeal to a group whose urgent need is the winning of an immediate profit.

CO-OPERATION GIVES ITS PROFITS TO FARMER

The farmers' enthusiasm for co-operation has been due in large measure to his belief that the middleman's rate of net profit was very high and represented a goodly portion of the consumer's dollar. Whatever this profit might be, the farmer has known that his co-operative company would transfer it from middlemen to himself. Assuming it to be large and also recoverable by co-operation, it is no wonder that farmers have come to look upon organization as the pathway for speedy movement out of their difficulties.

Co-operation as a form of business organization definitely gives its profits to its farmer owners and members. If reasonably efficient as an operating company in comparison with other competing organizations, the co-operative enterprise is destined to make the usual margin of net returns. While these returns vary greatly in both rate and amount from year to year, they average over a period of time only a modest figure. For the most efficient organizations, only a few in number, profits of large and attractive size are made. But for the relatively inefficient, and this class includes the mass of middlemen, either very slight profit or none at all is made. The lower limit is, of course, a net loss instead of any profit. The upper limit is uncertain, but for farm products seldom exceeds 12 cents out of

the dollar of sales or 100 per cent on the paid-up capital.

ORDINARY RATE OF MARKETING PROFIT SMALL

Investigations have repeatedly shown that the bulk of farm products yield much smaller profits than is popularly supposed. A common rate of profit is from one to four cents per dollar of sales of staple articles like livestock products, flour or butter. These profits yield from six to thirty per cent on the capital, according to the efficiency of the business management. In contrast with these rates of profit in the marketing of goods subject to continuous or fairly frequent turnover are those products which, like the canned pea, are handled by concerns highly seasonal in operation and subject to a single turnover. Such companies have received for a considerable part of the industry in a single favorable year as much as 11.5 cents per dollar of sales. This was equivalent, for the more efficient factories, to as much as 100 per cent upon the invested capital. It is to be emphasized, however, that where the rate of profit seems excessive, it is usually earned upon exceptional commodities in abnormal cases or else in connection with business where the turnover is very slow.

It is these profits, regardless of size, that the co-operative marketing organization stands its chance of making. If efficient enough to win profits against the competition of other business organizations, there is no question as to who will receive them. They will go to the farmer owners of the co-operative company instead of going, as formerly, to the owners of the private marketing system. It is the promise of this result that has been the greatest lure to draw farmers into co-operative endeavor. No motto or argument in

promotion has been more widely used than this to win membership and product for the co-operative machine.

PROFIT LEAST IMPORTANT CO-OPERATIVE BENEFIT

Yet, important as marketing profits may appear to the farmer, they are about the least important of all of the benefits which successful co-operation is able to confer upon its members. Profits differ in amount from year to year. They increase, decrease or vanish according to the relative efficiency of the company in contrast with its competitors. Thus, while profits may disappear in a year of price deflation and by their very disappearance seem to prove to the co-operator who co-operates for profit only that his organization is a failure, it should be remembered that most of the real reasons for co-operating are still valid. To obtain the usual margin of marketing profit is an insignificant reason for co-operating, in comparison with the seven other kinds of benefits flowing from successful co-operative effort.

Perhaps one great reason for the short-lived characteristic of co-operative companies is that membership has grown up on the trivial foundation that profit-winning was its chief aim and only justification. Then when profits were made and distributed as patronage dividends in the usual abundance of a few cents per dollar of sales, the farmer was justly disappointed. To be won to a large program by the appeal of an assumed reward of real proportions, which turned out to be fleeting in character and insignificant in size, is the experience of thousands of farmers. This is the great danger of using popular appeals to enlist support for movements that must, if they are to be successful, be founded upon a deeper

understanding and a more substantial and lasting type of benefits.

CO-OPERATION REDUCES MARKETING COSTS

The farmers' interest in marketing profits is inspired by a belief that their size greatly reduces the farm price receivable for commodities. This is a perfectly logical mistake. Since middlemen are assumed to be non-productive, to be stationed strategically for the levy of toll upon all that the farmer produces, it is readily understandable how farmers almost universally have gained the idea that the marketing margin or gross profit of middlemen represented an equivalent figure of net profit. Numerous investigations, however, have shown what the middleman does, what it costs him to market farm products, and the size of his net profits. From these inquiries it is definitely known that the actual costs of doing the work of marketing amount to many times the size of net profit. In fact, most of the difference between the prices received by farmers and those paid by consumers represent expenses. Only a small part is actual net profit.

The farmer has much more to gain by co-operation to reduce the costs of marketing than in co-operating to obtain the middleman's profit. If it is justifiable to co-operate to secure the usual profits, it is much more worth while to co-operate to render marketing services at less expense. This is clearly demonstrated by the experience of many co-operative institutions, whether they are handling livestock, grain, citrus fruits, nuts or cheese.

In the livestock marketing business, for example, one important middleman service is performed by the commission firm. All, or at least most, of these firms on a given market hold

membership in a trade organization commonly designated as a livestock exchange. To establish stability in the competitive standards so far as this is possible, and to give customers reasonable protection against the unfair competition that would come from a fluctuating commission rate, the livestock exchange fixes a definite commission to be charged alike by all of its members. The rate or size of the commission is determined on

livestock commission firms. In its seven years of successful history it has sold over \$155,800,000 worth of livestock. The commissions amounted to \$1,483,745, of which expenses required only \$624,383 or about 42 per cent, leaving \$859,362 or almost 58 per cent as the savings for the farmer owners.

The point of most significance in this particular illustration (brought out in Table I) is that, as the volume

TABLE I—COST REDUCTION BY A CO-OPERATIVE LIVESTOCK COMMISSION SYSTEM

Year	Value of Livestock Sold	Number of Cars	Total Commissions	Expenses	Savings	Per Cent of Commissions	
						In Expense	In Savings
1917	\$5,143,234	2,186	\$26,781	\$14,877	\$11,904	55.5	44.5
1918	18,951,140	6,916	93,474	50,844	42,630	53.9	46.1
1919	26,669,551	9,446	141,887	81,500	60,387	57.4	42.6
1920	21,660,539	9,847	157,611	72,772	84,839	46.2	53.8
1921	20,243,188	14,883	264,504	109,779	154,725	41.5	58.5
1922	27,833,516	19,962	330,534	124,436	206,098	37.7	62.3
1923	35,810,519	23,552	468,954	170,175	298,779	36.3	63.7
Total	\$155,811,687	91,742	\$1,483,745	\$624,383	\$859,362	42.1	57.9

the reasoning that it should be sufficient to permit the existing commission firms to continue operations. In other words, the membership votes to fix a commission high enough to justify the continued operation of the majority of its supporters. Inquiry shows that under these rules there are always some of the firms which make no profits because the commission is not large enough, when taken upon their volumes of business, to meet the costs of operation. It is in just such a circumstance as this that the co-operative plan successfully applied demonstrates its worth in reducing the costs of operation. An illustration of this is had in the experience of one of the older systems of co-operative

of business was expanded, the costs of running the commission firm decreased. Thus with 2,186 cars that sold for upwards of \$5,143,000 in 1917, the expenses amounted to 55.5 per cent of the commissions. In 1922 after the business had grown to over 28,500 cars which sold for more than \$35,800,000, the costs of operation had fallen to 36.3 per cent of the commissions received. Experiences of this kind demonstrate that, under the private marketing system, companies with a business of the most economical size have not been doing all of the marketing work for livestock farmers and that there is consequently much to be gained by using co-operation to force consolidation. Two results are thus

gained, one being the savings above noted and the other the reduction of commission rates. Already the commission sales rates have fallen in at least one market,¹ due to the pressure of competition between large-scale co-operative firms and equally large private houses.

(1) *Reduces Cost in Grain Commission Sales*

In the grain industry the ability of successful co-operation to reduce operating costs is more outstanding than that of livestock commission firms. The grain exchanges, like the livestock exchanges, determine upon a fixed rate of commission to be charged by all members. The Saskatchewan Co-operative Elevator Company, Ltd., as a member of the Winnipeg Grain Exchange, was required to charge the regular 1 cent per bushel commission for selling 19,449,000 bushels of grain.²

Having developed a large-scale co-operative business, its cost of operating the commission sale of grain was reduced to .21 cents per bushel.³ Thus in contrast with the private sales system requiring a commission of 1 cent, the co-operative organization was able to effect economies through increased volume of business which resulted in the reduction of cost to substantially one-fifth of the margin taken by private firms. Computed on the basis of its \$503,116 of paid-up capital,⁴ these cost reductions amounted to an equivalent of more than 30 per cent profit,

yet they measured only .79 cents per bushel.

(2) *Cuts Walnut Sales Costs*

Turning to the experience of the California Walnut Growers' Association, handling a specialty and relatively non-perishable product, the same general result was accomplished in cutting down sales costs. Previous to 1912, before the co-operative sales organization was put in operation, it cost local associations 7.5 per cent of the F. O. B. value of their walnuts to have them sold through the usual coast brokers.⁵ By 1922 the Association had reduced this charge to 3.25 per cent of sales.⁶ Thus by its efficiency, it saved for farmers 56.7 per cent of the former selling cost. It is this kind of saving, in this case 4.25 cents on every dollar of goods sold, that emphasizes the fact that the ability of the successful co-operative to reduce costs is a much greater argument for it than the winning of the usual middleman profits.

(3) *Reduced Sales Costs of Citrus Industry*

The longer experience of the California Fruit Growers' Exchange gives an even more extreme emphasis of the importance of co-operating to cut expenses. Before this sales organization functioned, the old-line middlemen charged 35 cents per box to sell citrus fruit.⁷ This was approximately 17

¹ Instance of commission rate reduction by the Central Co-operative Commission Association of South St. Paul, Minn.

² Province of Saskatchewan, Dept. of Agr., Co-operative Organization Branch, Second Annual Report, p. 27.

³ The Saskatchewan Co-operative Elevator Co. Ltd. News, April, 1918, Vol. I, No. 1, p. 6.

⁴ Province of Saskatchewan, Dept. of Agr., Co-operative Organization Branch, Second Annual Report, p. 27.

⁵ Articles of Incorporation, By-laws, Agreement and Methods of Doing Business of the California Walnut Growers' Association, Revised April 30, 1918, p. 33.

⁶ Annual Report of the General Manager of the California Walnut Growers' Association, June 1923, p. 4.

⁷ Cumberland, W. W. *Co-operative Marketing*, p. 186. Lloyd, J. W. *Co-operative and Other Organized Methods of Marketing California Horticultural Products*; Univ. of Ill. Studies in Social Sciences, Vol. VIII (March, 1919), No. 1, p. 18.

per cent of the value of the sales. In a normal year, 1921, the co-operative sales cost was 7 cents per box⁸ or only one-fifth of what it was before organization. This latter figure, let it be emphasized, was only 2.42 per cent of the sales value, while the former cost was above 17 per cent of sales. Thus the relative cost of sales in this industry has been reduced to one-seventh of its former amount.

(4) *Dealer Profits Versus Cost Reduction*

Perhaps the best available illustration, based on reliable statistics, to show the comparative importance of winning dealer profits and of effecting economies in operation, is the experience of the Wisconsin Cheese Producers' Federation. In the cheese industry, dealers frankly admit that they would be fortunate indeed to win a net profit of one-eighth cent a pound upon their entire cheese sales. Yet middlemen, in trying to make this small margin of net profit, according to evidence from a careful investigation in 1912, required a gross competitive margin for the industry of from 6.25 cents to 12.5 cents per dollar of sales.⁹ On this basis it is conservative to assume a margin of 8 cents per dollar of sales for the period preceding operation of the co-operative sales company. The anticipated middleman net profit of one-eighth cent a pound was therefore equivalent to 1 per cent of sales. Yet the cheese sales organization was able, in its ten years of operation, to reduce expenses to less than one-half their former proportion, cutting them from the figure of 8 per cent of sales to 3.43 per cent of sales. This resulted in a saving to

the farmer of 4.57 cents on each dollar's worth of cheese sold.

In this case the actual cutting of costs amounts to more than four times the ordinary rate of net profit in the cheese business, representing 1 per cent of sales. The members of this co-operative cheese-marketing company would be overlooking most of the justification for their mutual endeavor if they were content to strive merely to take over the ordinary rate of dealer profits as their main object. It is safe to say that in every line of co-operative marketing the usual rate of profit for middlemen represents a much smaller source of gain to farmers than the savings which successful co-operation is able to make by reducing the costs of operation.

CO-OPERATIVE ORGANIZATION IMPROVES MARKETING SERVICE

By far the most important source of financial benefits through co-operation lies in the possibilities which co-operation has to improve the services which marketing organizations render. The farmer is dependent upon the marketing system because he cannot as an individual do all the work or is incapable of rendering all of the specialized service which consumers or other buyers require in connection with the passage of commodities from farms to the ultimate users. At the same time, a large proportion of middlemen are only slightly better off than the farmer in respect to their ability and means of doing this work well. Successful co-operation applied to the task of rendering better service has accomplished much and will do vastly more, because it overcomes the weaknesses inherent in a condition which obliges farmers to act separately in their individual capacities.

To increase the prices which farmers receive by enlarging the percentage of the consumer's dollar that reaches

⁸ Annual Report of the General Manager of the California Fruit Growers' Exchange, 1921, p. 9.

⁹ Wisconsin Agr. Exp. Sta. Bul. 346, *Marketing by Co-operative Sales Companies*, p. 10.

them is far from a simple problem. Co-operative companies have frequently sought to do this, but their failures have been the proof of its dangers and difficulties. Yet there are organizations of notable success marketing each year an aggregate of hundreds of millions of dollars' worth of farm products. In variety these commodities include staples and non-staples, perishables and non-perishables, raw materials and finished articles, goods involving every type of problem and need for specialized service.

These organizations have found that their operations must be designed to overcome the evils of individual marketing and of inefficient private marketing. And because these evils are due in large measure to a combination of too small a volume of product and incapable management, co-operative effort seeks dependable patronage and experienced brain power. Moreover, a successful co-operative recognizes that the chief object of volume of business is that it may have sufficient work to do to justify the employment of the most expert and efficient marketing business men that training and experience afford.

The contrast between a farmer trying to market his products and the proficient marketing specialist doing it both for him and for a host of his near and distant neighbors is a mental vision which every co-operator should have. The farmer may or may not be a specialist at farming. This is the case for the reason that he may be confining his efforts to wheat growing or to milk production, either one a special line in agriculture, or he may be conducting a combination of mixed operations known as general farming. In the latter case he is not a specialist at farming. Instead he does many things instead of only one or a few.

If, in addition to his farm work, whether special or general in character, the farmer undertakes to market the output of his toil, then he ceases entirely to be a specialist. In doing many different things in any one set period of time he has too little of each to do to become expert. Diverse work makes the jack-of-all-trades. It takes work on one thing to make a specialist. In this age of complication, successful economic effort is requiring more and more that work be done fast and well. These are the attributes of the specialist. The jack-of-all-trades works slowly and gives a poor result.

Co-operation gains its great value in guaranteeing, so far as the farmer is concerned, that the work of marketing shall be done by specialists and not by jacks-of-all-trades. Marketing breaks up into a large number of special tasks. The farmer with his small quantity of product can never hope to do his farm work efficiently and also render each of the ten marketing services. But joining with the requisite number of other men creating similar farm commodities enables farmers by co-operating to bring together both large volumes of business and the requisite talent and experience to improve service standards. In the long run, if past experience is any indication of the future, the most beneficial improvements in marketing service may be briefly grouped along four lines, as follows:

- (1) Development and use of systems to rigidly standardize both product and package.
- (2) Dependable identification, by name or otherwise, of farm products according to quality so that the prices paid by consumers may make their direct impression upon the farm management policies of producers.

- (3) Effective spreading of marketing risks which now burden farmers, a benefit made possible by large scale co-operative organization.
- (4) Elimination or reduction of speculative motives and policies in the conduct of marketing operations for farmers.

Each of these accomplishments has been demonstrated by the work of co-operatives in a number of countries. From these numerous cases, perhaps the most dependable illustration is the experience of a group of co-operators in Oregon. More complete facts are

competes directly with the same variety of cheese from Wisconsin. It is, therefore, possible to read the financial success of this co-operative organization on the scale of Wisconsin cheese prices. During the last five years of its operation, it has followed all of the scientific merchandising principles applicable, so far as is known, to its undertaking. The record of this five-year period, in contrast with the preceding period of four years, makes possible the careful measurement of increases obtained in prices. The higher prices gained by better services are accordingly shown in the following tabular presentation:

TILLAMOOK INCREASED PRICES BY IMPROVING SERVICES

Year	Pounds of Cheese Sold	Wisconsin Cheese Price. The Base of Comparison. (Cents per pound)	Net Amount * Tillamook Cheese Sold Below Wisconsin Price. (Cents per pound)	Net Amount * Tillamook Cheese Sold Above Wisconsin Price. (Cents per pound)
1915	4,048,875	15.09	3.30	....
1916.....	4,335,817	17.57	2.81	....
1917... ..	4,974,328	24.09	2.57	....
1918... ..	5,036,900	27.05	2.68	....
1919... ..	6,091,269	30.11	....	.29
1920... ..	6,436,600	25.71	....	1.92
1921... ..	6,722,893	18.02	..	3.04
1922	6,615,957	19.34	..	4.45
1923	7,118,076	23.32	..	1.18

* Net Amount means that the difference in freight rates has been eliminated.

available in this instance than in most others to measure the actual increase in the financial reward arising from co-operative service improvement.

The Tillamook County Creamery Association is fifteen years old in marketing experience. Its volume of American cheese, for that is the commodity handled, represents less than two pounds out of every 100 produced in the United States. In the markets where it is sold, Tillamook cheese

A comparison of the first period when Tillamook prices were below Wisconsin prices with the second, when they were above, brings out the point to be emphasized. It is that before marketing services were improved this co-operative organization received 2.8 cents a pound less in the first period than did its Wisconsin competitors. After improving its services, it received during the second period 2.2 per pound more than the

price secured by its Wisconsin competitors. This difference between the first and second periods amounts to 5 cents a pound. On the basis of the 20.94 cents average price in the first period, 22.90 cents in the second and 22.36 cents for the entire nine years, a 5-cent gain in price is more than one-fifth or upwards of 20 per cent. Certainly a gain of this size testifies to the great importance of service improvement. It is many times more worth while than either dealer profits or the savings made by cost reduction. Moreover, neither of these latter benefits are as exclusively co-operative as the work of improving marketing services. For this reason, as well as for the sake of the amount of actual financial gain, the ideal to improve marketing services is the outstanding practical object for co-operating.

Taken together, the ordinary marketing profits, the savings through lower operating costs, and the higher prices, obtained by rendering more pleasing and effective service, are the three

proved sources of financial benefit through co-operation. They are the means of gaining the larger farm price which makes co-operation worth practising. In the highly-developed, older co-operative systems, money rewards of these three kinds have been received in greater or lesser degree. In some of the matured cases, perhaps as much as one-quarter of the sustained price paid farmers is directly the result of successful co-operation. That prices are greatly improved in these ways is positive. On the other hand, farm prices are not permanently doubled or trebled by co-operation. In fact, all who preach co-operation and leave the impression that it can quickly and permanently raise prices more than 25 per cent should be called upon for full information and proof as to how their assurances may be brought into practical reality. This suggestion is made not to belittle co-operation but rather to stimulate that degree of sober judgment which is required to make co-operative organizations grow and succeed.

Possibilities and Limitations of Co-operative Marketing

By H. E. ERDMAN

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IT should be stated at the outset that any discussion of the possibilities or limitations of co-operative marketing must recognize the fact that there is a wide range in what may reasonably be expected of various organizations. Just what they are in any given instance will depend upon a number of factors such as the nature of the commodity, the degree to which private business has already perfected distribution of it, upon the degree to which people are trained in co-operation, and upon whether the co-operation considered is of a local or of a larger nature.

It should also be stated at the outset that the possibilities as outlined may not necessarily soon be fully realized. As a matter of fact, some of them are beyond the range of probability for the immediate future, although decidedly within the range of possibility if sought by men of ability and clear vision. Moreover, all of them are contingent on good management. Following are some of the outstanding possibilities of successful co-operation:

POSSIBILITIES OF CO-OPERATIVE MARKETING

(1) *Standardizing and Improving Production.* In thinking of the possibilities of co-operative marketing, producers are inclined to think in glittering generalities of things a long way off—"elimination of middlemen," "price fixing," "orderly marketing," etc.,—little realizing that some of the most potent fields for fruitful activity on the part of their marketing organizations are closely at hand.

Among those closest at hand are the possibilities arising from standardiza-

tion of varieties and from improvement in production.

Producers are usually inclined to object to having the management discuss production. The management, in their opinion, has been hired to sell. It must be remembered, however, that the management is in a position to know what varieties and qualities the market demands and it should be expected to point out the facts to the membership. The sale of radio outfits has curtailed the sale of phonographs; now the phonograph manufacturers are making radio outfits. Agricultural production must likewise be made to meet demand, and the larger co-operative associations are in a position to direct adjustments.

Producers in all parts of the country do too much experimenting with varieties, whether of apples, chickens or potatoes. A survey of twenty-four farms in northern California disclosed the fact that on these twenty-four farms were being produced forty-two varieties of plums and thirty-two varieties of peaches. The manager of a nut marketing organization, operating in the same general part of the state, complains that he finds it extremely difficult to sell advantageously the nuts from this section because so many varieties must be loaded to make up carload lots. The result is that either markets are greatly restricted or additional expense must be incurred for less than carload shipments or for concentration and reloading.

A similar situation obtains in many other communities and often in an exaggerated form on individual farms. Thus an apple grower in western Ohio

a few years ago displayed sixty-eight varieties of apples grown on his own farm. For local markets such a multiplicity of varieties does not offer any particular sales difficulties. In fact, for direct marketing purposes they might even offer an advantage, but when it becomes necessary to reach wider markets the problem of distribution is made vastly more complex by the fact that every car loaded at the shipping point is likely to have a large number of varieties and that shipment may have to be made in less than carlots.

The instances cited are possibly extremes, but they indicate a general tendency among farmers everywhere to select varieties of plants or breeds of animals upon independent individual judgment rather than upon a community basis. From a marketing viewpoint, however, this only splits up the quantity marketed at country points when quantities are already too small in most communities for efficient marketing.

Co-operative organizations can do much to bring about standardization along this line by discouraging the production of the less desirable and by bringing about the general adoption of a few of the best breeds and varieties.

Again, co-operative organizations can bring about improvement in production and particularly can promote the adoption of those practices which tend to make for standard quality of product in the community. Uniformity in time and in method of spraying and pruning certain fruits makes for uniformity in appearance and color. Already in certain sections of California the spraying and pruning of citrus fruits is done by the co-operative packing associations, largely, it is true, on account of the greater efficiency thus obtained, but also because of the greater uniformity of product. For

similar reasons many of these associations have also undertaken the co-operative picking of the fruit.

Local co-operative creameries have had a difficult problem in meeting the competition of the large centralized creameries on quality. Very often their product has scored higher, but because the quality varied from time to time they could not obtain as good a price as that obtained by the large concerns for a highly standardized but lower scoring product. Recently certain groups of these creameries have come to recognize the advantages of having standardized products and have employed field men to work with the local butter makers in order to bring about uniformity.

One of the outstanding advantages gained by the Danish co-operative creameries in selling their butter on the English market arose from a similar line of action. Danish bacon offers even a more striking example of planned production. In this case it was discovered that the English trade demanded bacon from a peculiar type of hog. Thereupon the Danes set about by organized effort to produce that particular type of hog.¹

(2) *Standardizing and Improving Grade and Pack.* A second outstanding possibility for co-operative marketing organizations is also to be found near home. It consists in improving and standardizing grade and pack. Co-operative organizations, particularly the larger ones, have played an important part in bringing about not only the improvement of grades but the standardization of grades from shipping point to shipping point and from time to time. Familiar examples of a high degree of standardization by co-operative associations are brought to mind by the mere mention of "Sun-

¹ Chris L. Christensen, *Agricultural Co-operation in Denmark*. U. S. D. A. Bul. 1266.

kist" oranges, "Eatmore" cranberries, "Sun-Maid" raisins, "Diamond Brand" walnuts, etc. The greater the control of the central organization over the product the greater the possibility that a high degree of perfection may be reached along this line.

In the case of products which can be sorted after delivery by the producer, control of the local receiving house enables an association to put into effect improved grading and packing practices on short notice. With such products as berries and certain other deciduous fruits, where farmers do their own grading and packing, a long program of education may be necessary.²

What has been said of grading may also be said of packing. Improved and standardized packaging is particularly important because of the fact that sale in the wholesale and jobbing markets is so frequently made by the package. Apples, for example, are sold by the barrel or by the box, lettuce by the crate or by the hamper, berries by the crate, tray or box, peaches by the box or basket. Moreover, packages of the same type frequently vary in shape by such slight gradations that the eye can scarcely detect and certainly cannot measure. All this leads to friction in the marketing process.

Federal and state legislation have done much to bring about improvement, and co-operative organizations controlling substantial portions of various products can do even more.

Improving and standardizing grade and pack should make marketing more efficient by (1) raising the general quality of the product, (2) improving its carrying quality, and (3) permitting readier agreement between buyer and seller.

(8) *Stabilizing Production.* Stabilizing production in agriculture is most difficult because *first*, the biggest single factor in determining production in any one year is the uncontrollable element of weather, and *second*, because the decision as to how much to plant or how intensively to operate rests with so many different individuals, each acting independently.

Under ordinary conditions growers of apples, lemons or grapes continue to plant so long as prices are high, in spite of the fact that immense acreages have already been planted but have not yet come into bearing. Governmental agencies have already published the facts, but large co-operative organizations interested in particular commodities should go even further. At present the facts either do not reach the members or they are not correctly interpreted. By keeping their members and others thoroughly informed as to the prospects of over-planting or under-planting, it should be possible to reduce materially the violent fluctuations so prevalent in many cases today. Co-operative organizations can do much to make crop information more accurate; then they can do even more to disseminate the facts and still more to bring about intelligent action on the basis of the established facts, not only on the part of their members but on the part of outsiders as well.

There has been a tendency on the part of many co-operatives to avoid this subject because of fear of attack under anti-trust acts, state or Federal. We are probably already in an area of saner attitude toward co-operative action along this line. Big business is being urged to avoid recurring "booms" and "hard times." Why should not organized agriculture be encouraged to do the same? Certainly large co-operative associations should have at their disposal the talent to show the

² See J. D. Black and H. B. Price, in Minn. Exp. Sta. Bul. 211, *Co-operative Central Market Organizations*, p. 75.

public and government officials that stabilization benefits the public by preventing the recurrence of successive periods of surplus and shortage.³

(4) *Controlling Flow to Market.* The control of rate of flow to market—often spoken of as “orderly marketing”—has many possibilities for co-operative action. It has, however, been overemphasized.

Orderly marketing may mean very different things for different commodities. It may mean, for example, such an adjustment of shipments to demand as to put on the market throughout the year a fairly uniform amount each month. This is conceivable in the case of organizations marketing grain, cotton or wool. In the case of organizations handling a commodity with a highly seasonable demand, it may simply involve a rapid movement of the main crop at a particular time with a reasonable effort to lengthen the season by keeping some product on the market at all times so as to encourage year-round consumption. This, for example, is what is being done with such products as cranberries, walnuts and almonds, all of which are holiday products for which the season of active demand can only slowly be lengthened. With such products as eggs, on the other hand, orderly marketing may mean taking from the market in flush seasons a part of the product and putting it in cold storage to be moved out to the market later on in the year. This, however, involves the taking of certain speculative risks. These risks may, however, be minimized by the adoption of careful sales policies.

With an organization which controls a very small proportion of the product, the problem of orderly marketing may resolve itself into a problem of forecasting the season's price and then selling a portion of the product whenever

the price reaches or goes beyond this forecasted price. Or it may mean finding “gaps” in the market.

The California Rice Growers' Association, for example, makes a large proportion of its sales on the Japanese market. Since, however, it controls but a fraction of one per cent of the world's rice supply there is not the remotest possibility of price control. What this organization does is to attempt to forecast prices and the movement of crops of other countries. Then it aims to get into the market *between* other crops at the best prices then obtainable. This, of course, involves the use of the best available means of forecasting prices and means that the management of the association must do what individual producers ordinarily do, namely, sell the product at such times as their judgment decides the best price may be obtained. Such a policy is likely to lead to trouble when members do not fully understand and approve.

Another possibility is that of diversion of a portion of the product to other than the usual uses. A berry growers' association, for example, arranges to take off the fresh fruit market any berries which cannot be sold at a stated minimum price and sells them to canneries.

Milk producers' associations in many instances are using this method of regulating flow. In this case numerous markets are open to them—butter, cheese, condensed or powdered milks, ice cream, casein, etc.

When there are alternative outlets it is only “good business” to use them whenever they pay better than the usual outlet. Whether, however, a surplus can profitably be disposed of at a lower price than may be obtained through regular outlets, will depend upon the proportion of the commodity under control of the association and

³ See Minn. Bul. 211, pp. 60-73, *op. cit.*

upon the nature of the demand schedule for its product at that particular time. In most cases it will not pay a co-operative association to take any substantial loss in this way.

It has repeatedly been questioned whether any decided advantages will arise out of studied regulation of the flow of the product into the market in the case of such commodities as grain and cotton, which are extensively bought and sold on organized produce exchanges. The claim is that in these instances the development of a class of speculative traders has so accurately forecasted future prices that as a matter of fact the farmer might in many cases market his product at almost any time in the year which suits his own convenience, without suffering material loss, because someone is always ready to buy. In substantiation of this claim are presented figures showing the average price by months over many years, the gist of the evidence tending to show that the prices prevailing at harvest time have not, on the average, advanced by more than enough to cover storage and handling charges before another crop came onto the market. Here the probable gains from control of flow are frequently overemphasized.

On the whole, control of flow to market is full of possibility when intelligently and boldly undertaken, but is equally full of danger when undertaken without adequate knowledge of facts or skill in execution of plans.

(5) *Improving Distribution as Between Markets.* Evenness of distribution is a matter of particular importance in the distribution of perishable fruits and vegetables, especially where a given producing section must send its products to many markets and so distribute them as not to clog any one market while leaving another bare. When one area alone produces the bulk of a crop, as is the case with the Cali-

fornia lemons, the matter is relatively simple. It becomes far more complex when numerous sections compete with each other. Such is the case with peaches during certain summer months, with strawberries, and with many other fruits of like nature.

Three methods have been proposed for bringing about more even distribution. One is to put the distribution of practically all of a given product into the hands of a large co-operative organization. The second is the sale of all of the product at shipping point or early in transit through such a device as the F. O. B. auction. A third is the adaptation of the clearing house idea to the distribution of fruits and vegetables. Where co-operative associations have control of the bulk of a given product in all the leading sections, there is a possibility that these may be effectively federated after the plan of the American Cranberry Exchange. Once this is accomplished the way is open for more efficient distribution than now prevails. With most products such an ideal condition is still far away. It must not be assumed that this is a simple matter. Doubtless the distribution of the Imperial Valley cantaloupe crop would be greatly simplified if centered in one agency. But it would still involve daily adjustment as between markets to meet changing competition with other fruits, and to meet changing economic and weather conditions.

(6) *Advertising and the Development of New Markets.* It has been pointed out that there are fairly definite limits to the amount of food each person can eat and that therefore co-operative advertising of food products will simply sell certain products at the expense of others. There is doubtless a large measure of truth in this contention. It matters little, however, to the California lemon grower whose product, if

any, the lemon has displaced. Nor is the raisin grower greatly concerned if the raisin has displaced certain other foods. From the point of view of co-operative associations that are selling specific products, judicious advertising seems to have paid, and will doubtless continue to pay. It is very likely true that even so staple a commodity as the potato might benefit by advertising in years of overproduction, particularly if the advertising emphasized relative cheapness, showed new ways of using them, called attention to reliable brands, and is followed by effective sales effort. A specialty like artichokes, which is still unknown to many people, would seem to offer a particularly good field for this sort of effort.

Ordinarily large volume of business is necessary in order to carry the heavy expense of national advertising. It is not likely that private enterprises handling California oranges and lemons through a large number of relatively small agencies could possibly have advertised those products and developed markets for them in the way the California Fruit Growers' Exchange has done. Nor is it likely that any group of individual firms would have put forth the enormous effort to widen the markets which the Sun-Maid Raisin Growers' Association has put forth.

Not only, however, must there be a large volume of business to cover such expenses but there must be control of a large proportion of the total production. Exception should be made, however, to the case of organizations which restrict their distribution to a relatively small area. Tillamook cheese, for example, commands a premium on the Pacific Coast and it is to this area that the advertising of this brand has been limited.

The development of markets involves more than advertising. For

example, the development of European or Asiatic markets for prunes, for rice, for raisins, involves the establishment of sales agencies when it is known that their establishment will involve losses for a number of years. An association controlling a large portion of an important crop on which the production is increasing can well afford to undertake such activities; but no organization handling only a small portion of a crop could afford to go to such expense, because competitors would promptly step in and obtain the advantages once a market has been established.

How greatly advertising is valued by business men in general is indicated by the fact that the trade marks of certain well-known articles are valued at from six to ten million dollars; and it has been estimated that the very name "Sunkist" is easily worth \$6,000,000. At that rate each of the members of the California Fruit Growers' Exchange has an average asset of more than \$545 to

write into the value of his business of orange or lemon growing, or an average asset of \$30 per acre to write into the value of his land.⁴

(7) *Collective Bargaining.* The lure of price control has been prominent in the propaganda of many an organization campaign. Its popularity arises out of the belief on the part of the farmer that everyone but himself does control price and that he too can do so if only he and his fellows become properly organized.

Individually the farmer is a notoriously weak bargainer because

- (1) He does not know in what grade his product falls;
- (2) He does not know the relative value of different grades;
- (3) He does not know what his local price should be even when central market

⁴ California Citrograph in a recent issue.

prices are known, and frequently he cannot even interpret wholesale market quotations;

(4) He cannot follow market conditions closely enough to know at any given time whether market tendencies are up or down; and

(5) He is slow at sizing up a proposition put in a new way.

Local organization may put a group of farmers in a somewhat improved position, particularly if their product finds mainly a local market not readily supplied from outside sources. Most milk producers' associations are in this class, as are canning crop growers. Most local organizations such as farmers' elevator companies, livestock shipping associations, and local creameries merely give all their members an even chance at the wholesale market. This may, indeed, be a greater price advantage than can be obtained by any further organization, especially for the weak bargainer. It is doubtful, however, whether a very large organization of livestock producers could go much further in price making than at present, except in so far as they might influence price by controlling flow to market. So too with the grain elevators.

When an organization acquires "that substantial control" which gives it temporarily an element of monopoly, a different situation obtains. The California Walnut Growers' Association and the Sun-Maid Raisin Growers have been in this position of late years. They must and do name a price *for the crop at hand*. Their situation differs from the usual idea of monopoly in the sense that they have no control over production. They merely ask the highest price at which the consumer will take the entire crop. Moreover, this may have an element of collective bargaining, when, for example, the management advises with the trade as to the price at which the crop can be moved. Such procedure is not possible,

however, with such a product as lemons, because these must be moved out throughout the year as they mature. In this case the auctions largely determine the price as the product moves into trade channels. Centralized control of the flow to market would help stabilize price, but probably could raise it only by eliminating the "red ink" troughs.

There would seem to be no doubt as to the fact that central sales control puts producers in a much improved position over individual action. It is equally evident, however, that the price-making power of co-operative organizations is much more circumscribed than is commonly believed. The biggest opportunities lie *between the producer and the wholesale market*, although in many instances co-operative organizations can also influence and particularly steady the wholesale price.

(8) *Financing of Marketing Operations*. The individual farmer in many parts of the country has paid dearly for credit. Where commercial organizations have supplied the credit, they have had to "play safe" and have not only charged high rates but have also required producers to sell to them, thus restricting their outlets. This has been particularly true of cotton and tobacco.

Co-operative associations, where efficiently managed, can obtain credit at more reasonable rates or they may obtain more credit, or both, than can the average individual. They do this (1) on the basis of collective credit of the group; (2) on the basis of adequately warehoused goods; and (3) on the basis of collectively owned property. The net result then is not only more or better credit but greater freedom in bargaining for sale or purchase.

(9) *Making Marketing More Efficient*. Much of what has already been dis-

cussed of course falls under the above heading. There are numerous other ways, however, in which marketing can be made more efficient. Many of the large organizations have been able to correct certain abuses that had crept into business.

Again, in many instances marketing costs have been reduced. Farmers' elevators in the grain belt have often reduced costs per unit from one to several cents per bushel by increasing their volume of business. Farmers' creameries have frequently done the same thing, as have the farmers' livestock associations. The California Fruit Growers' Exchange reduced the cost of distributing and selling fruit,—in fact just about cut it in half. Wherever costs have been cut the profits have gone back to the farmers in higher prices or patronage refunds.

This point should not be misunderstood. A co-operative association cannot do business more cheaply than private enterprise can run the same business. In fact many instances can be found where private industry has also cut costs even more drastically. In those cases, however, the savings have for the most part gone to the enterpriser as profit, while the margins were established by the less efficient. But the co-operative associations often get much more of the business of a community than any single private enterprise has been able to get and hence can cut costs.

Decreased costs should not be taken as the sole measure of efficiency. Very often there are increased services. There is probably no successful co-operative association which is not offering more services than private enterprise was offering. They have, for example, been more efficient in collecting claims, in expediting movement, in pushing sales; they have gone further in developing new markets and

in advertising the products. All of these services and others must be considered in making comparisons.

(10) *Maintaining Favorable Public Relations.* The above heading is used for want of a better designation to cover a variety of services which strong co-operative organizations can and do render. The management and officers are closely in touch with the needs of their industry. They are in an excellent position to present evidence against proposed vicious legislation or to present facts in favor of desirable legislation.

Similarly there is the occasional need for someone to appear before public bodies. A few years ago, there was a proposal for a ten per cent increase in freight rates on grain from the Middle West. Grain dealers made no protest. It mattered little to them. But the farmers' elevator companies realized that an increase in freight rates meant decreased prices for grain. Through their national organization they appeared before the Interstate Commerce Commission and won their case, saving their members thousands of dollars. Many similar instances could be cited. Enough has been said, however, to show that strong co-operative organizations serve their members in other ways than through the immediate services for which they were established.

LIMITATIONS OF CO-OPERATIVE MARKETING

Thus far I have been writing in rather glowing terms of the possibilities of co-operative marketing. There are, however, some very definite limitations. Some of these are in the nature of absolute prohibitions, others are merely difficulties which capable management may overcome.

(1) *Co-operative Associations Cannot "Fix" Prices.* I have already pointed out indirectly some of the limitations

to price control by farmers' organizations. *No farmers' organization can "fix" the price at which the product is to be sold and sell all its product unless that price also suits the consumer.* It is the old story of not being able to make the horse drink after you have led him to the water. The consumer holds the purse strings, and if the price is too high he will buy less—perhaps much less, *but always less.* And the co-operative organizations, no matter how powerful, have no way of stopping production so as to maintain any given price. They might divert some of the products to secondary uses, but if that involves lower prices they lose on the surplus, while the lump sum obtained for the product sold at regular prices has to be divided between a constantly increasing number of producers.

(2) *Co-operative Organizations Cannot "Eliminate the Middleman."* A second fallacy is that co-operation "eliminates the middleman." What is done is to replace private business units by co-operative units. True, one co-operative association may replace a number of dealers. Again, a farmers' organization may take over a series of dealers, each of whom has been playing his part in moving the product toward the consumer. The California Fruit Growers' Exchange, for example, has in its system the local house, the central exchange, and the eastern representation. These have replaced the local buyer, the distributor and the broker. This, however, is not elimination, but integration—bringing a succession of steps under one control. No large organization has thus far *eliminated* any of the important steps in the marketing process.

(3) *Co-operative Marketing Cannot Cut Costs Greatly.* This has already been discussed, but should be mentioned again at this point. Moreover, when it does devise methods by which costs

can be cut, private business will meet or beat its cuts except where they are due to increased volume of business.

(4) *Co-operative Marketing Presents a Number of Inherent Weaknesses.* One of these is the difficulty of management and membership to maintain the same viewpoint. A co-operative organization is made up of a group of individuals each of whom operates an independent business of his own, but all of whom have a common purpose in co-operating. After they have been united in an organization each individual continues to go about his own business, while the management proceeds to execute the purposes of the new organization. *There is always danger that members and management get out of step with each other.* That is, the producers, busy with their own affairs, ignore the problems of the association. The management, on the other hand, becomes so engrossed in the details of management as to lose the point of view of the members. This does *not* mean that the management fails to keep in mind the interests of the members; *it is just as serious*, however, from the point of view of harmony and efficient functioning, *if the management interprets the needs of the members differently from the way the members themselves interpret them.*

Thus even though the management is capable and sincere there is a real possibility for serious misunderstanding if the growers do not understand changes in the policy of the management or if they come to believe that the management has not followed their original intentions. Other inherent weaknesses are that members become apathetic and fail to vote or that they vote for politicians instead of for men of ability. Again there is the strong tendency toward extravagance. The management may figure that a given expenditure costs but a fraction of a cent per

unit—but the farmers later see the lump sum.

Finally there is often at the start an "over sold" condition among the members of a new organization. Seldom, indeed, can a large organization be formed without raising hope too high. Then follows disappointment, contention and complaint, which only the

most patient and capable of management can overcome. Indeed, here lies one of the big jobs of the manager of a co-operative association. He must not only be an efficient manager but must keep his membership with him. He must have such a vision of what a strong organization can do that his enthusiasm becomes contagious.

Sound Principles in Co-operative Legislation

By JOHN D. MILLER

President, National Co-operative Milk Producers' Federation

CO-OPERATIVE legislation should meet the needs of those engaged in co-operative marketing as other laws have met the needs of those who for generations have been engaged in collectively making and selling wide varieties of articles and commodities.

In early days a partnership was usually the form of organization adopted by those engaged in such co-operative efforts. This method of combining, however, was found unsatisfactory.

EARLY EFFORTS

The difficulties surrounding any attempt to continue the partnership after the death of members, coupled with the liability of each member for all partnership debts, caused this form of combined effort to be both cumbersome and hazardous.

Many of the states then enacted laws authorizing the creation of limited partnerships under and by which those engaged in such combined efforts incurred no personal liability for debts of the partnership, they risking only the funds they invested therein.

This mode had many limiting factors, and to meet the needs of the growing industrial and commercial systems of the country nearly all of the states enacted laws authorizing the creation of corporations through and by which many persons could combine to collectively engage in any form of industrial, commercial or financial business without personal liability (with a few minor exceptions) for the debts of the corporation. The corporation as such does not die with the death of any of its members but may be created to exist a long term of years, and, by the laws of

many of the states, may have perpetual existence.

These laws, enacted to meet the needs of rapidly growing industrial, commercial, and financial systems, have been distinctly beneficial. While some of the great corporations have sometimes abused their power, as a whole they have kept pace with and each a part of the wonderful development of industry and of commerce, and their elimination would be a distinct step backward.

All of these laws, however, contemplated that the corporations thus formed would own and operate production plants as well as marketing agencies.

Co-operative marketing by farmers is not new. For generations farmers in many localities have been engaged in such efforts. These co-operative organizations were usually community organizations. Experience, however, convinced those engaged in such efforts that there was a supreme necessity to combine in larger and still larger numbers if they were to function efficiently. Recognizing this necessity, large organizations have been formed, some of them with sales reaching \$100,000,000 each year.

It is not expedient, however, for farmers to vest the title of their farms and herds in a corporation that would own and operate the farms as well as sell the products, and the problem presented was to obtain such remedial legislation as would permit farmers to continue to produce singly, but from that point on to emulate the efforts and practices of those engaged in other large undertakings by acting together

in processing, preparing for market and marketing the farm products of those thus engaged.

As long as farmers formed and operated only local or community selling organizations they were unmolested; when, however, they commenced to form large organizations their right to thus combine in large numbers was immediately challenged.

Indictments under state laws were found against them in California, Minnesota, Illinois, Ohio and New York; and under the Federal law in Louisiana. The Federal indictment in Louisiana was dismissed upon demurrer; the indictment in New York was dismissed after the legislature amended the law; the defendants in the remaining indictments were tried before a jury and in each instance acquitted. The annoyance and expense of such litigation was, however, a burden greater than some of them could bear. All were weakened and some destroyed.

These indictments were found under the anti-trust laws, and while farmers insisted that in combining to sell their products jointly they were not violating such laws, it became necessary to have such laws clarified in order that there might be no question of their right to act. Many of the states did this, while by an act approved February 18, 1922, Congress amended the Federal law, the first section of such amendment, reading in part, being as follows:

That persons engaged in the production of agricultural products as farmers, planters, ranchmen, dairymen, nut or fruit growers may act together in associations, corporate or otherwise, with or without capital stock, in collectively processing, preparing for market, handling and marketing in interstate and foreign commerce such products of persons so engaged. Such associations may have marketing agencies in common; and such associations and their

members may make the necessary contracts and agreements to effect such purposes.

These state and Federal amendatory laws seem to have met with public approval, so that now not only is it the right of farmers to thus act unchallenged but in so doing they have the moral support of all forward-looking persons in both city and country.

This résumé of legislation is but a preamble to the discussion of the subject of this article; i. e., *Sound Principles in Co-operative Legislation*.

FUNCTIONING OF CO-OPERATIVE LEGISLATION

In their work of selling farm products and buying necessary supplies, together with their dealings with transportation, financial, and other business concerns, the operations of a co-operative marketing association differ little, if at all, from old line corporations. As to such dealings the provisions of general laws equally apply.

Co-operative legislation, therefore, must refer particularly to the relation of members to their co-operative association and to each other.

The method almost universally adopted by farmers in their co-operative marketing efforts is to create a selling organization, usually corporate in form, which they control by the election of directors and which is clothed with broad powers both as to sales and as to the distribution of the proceeds of sales.

It follows that legislation affecting these mutual relations should be such as will permit farmers to contract with each other and with their association as they think conditions in the region where they operate and the nature of the commodity require.

Any attempt to create a statutory mould for all would tend to retard and obstruct the work of many. As well might clothing manufacturers make

every suit of one size and pattern. They would fit a few, but would not fit the many.

The language of the first section of the Federal Co-operative Act above quoted is a model for Federal legislation. In clear and concise language it confers broad powers, thus enabling those creating an organization to so write their certificates of incorporation, their by-laws, and their mutual contracts as state laws, regional conditions and the character of the commodity may dictate.

The Federal law above referred to seems to remove all obstacles to farm marketing organizations engaging in interstate and foreign commerce.

Such marketing organizations, however, are created under state laws and these should

First: Clothe these associations and their members with broad discretion as to the form of their organization and the provisions of their mutual contracts; and

Second: Include adequate provisions to insure control of the organization at all times by the members whose products the association is selling.

Discussing these in their order, it may be stated that while marketing contracts signed by farmers are in form a contract between each member and the organization, in substance and legal effect they are contracts of the members with each other, in which they agree that for a definite period they will jointly market certain of their farm products, the association being merely the agency created by members to execute and perform such mutual contracts.

The provisions of such contracts are without the scope of this article. Sufficient here to state that they should be such as the needs of the locality and the character of the commodity require, and, among other things, should

provide adequately financing the selling organization.

As the control of the selling organization by the members is of the first importance, the statute should provide methods by which such control may always be exercised. In large organizations covering a large territory with some members hundreds of miles distant from others, methods are sometimes provided by which ballots for directors may be cast by members at many local and convenient points. In other organizations directors are selected by delegates at an annual meeting.

Beyond all question proxy voting should not be permitted. This method lends itself too easily to the ends of ambitious and designing persons desiring to acquire a voice in the control of the association.

Here enters also a material difference in the method of control from that adopted by old line corporations, in which each shareholder has as many votes as he owns shares. Whatever method is adopted to finance the organization, the fact that one member contributes more than another should not give any greater voice in control. Usually it will be found that each member contributes, whether in the form of loans or of stock subscriptions, in proportion to the services rendered him by the organization. Each should receive the same rate of interest on loans or dividends on stock, but the vote of no member should be weighed by the amount of his loan or stock holdings.

Such interest on loans or dividends on stock should not be materially more than the usual interest rates in the region where the organization operates. The purpose of membership is not to make a profit upon their capital investments, but to efficiently market their farm products. It is as important

to those operating small farms as to those operating large ones that the prices they receive for products are fair, and each should, therefore, have an equal voice in control, differing in this respect from shareholders in old line corporations, whose only return on their investments is measured by the rate of dividends.

Statutes having provided methods by which control of the organization is at all times in the members, should then leave the members at liberty to clothe the directors elected by them with adequate powers to quickly decide all business problems that may be presented to them. In other words, the control of the organization must be in the members; the control of the business must be centralized in a few men selected by the members, else will such organizations be unable to cope with other great organizations with which they must deal and in which control of the business is centralized.

It may be that there is more danger of statutes going too far than in not going far enough. They should be written in general terms, and after providing methods of membership control should leave to members a wide latitude of discretion as to the organic and

contractual relationship of members with each other and with the organization. They should be a grant, not a limitation, of powers.

The Uniform Co-operative Marketing Law now written on the statute books of many of the states received the hearty commendation and support of co-operative marketing associations because it recognized these basic principles.

With all the states enacting such a law, further Federal or state legislation may well be delayed until experience has shown what, if anything, more is necessary.

SUMMARY

It may be stated that principles of co-operative legislation should not be confused with details. Principles are few; details, many.

State statutes providing easy and convenient methods for control of the organization by members with easy and convenient means of incorporating the associations should be so written that the multitudinous details of the contractual relations of the members with each other and with the organization should be determined by the members themselves and not by statute.

Marketing Fluid Milk in Philadelphia

An Experience in Sales Co-operation

By R. W. BALDERSTON

Secretary, Interstate Milk Producers' Association and Philadelphia Dairy Council

IN order that the morning milk shall be regularly placed on every one of the 400,000 doorsteps of Philadelphia every day, a highly developed organization and a number of contributing agencies must function properly. Every quart of this milk must be palatable and conform to guaranteed standards of quality and safety.

The public has a right to and does demand that the very latest discoveries of science be applied to the safeguarding of the milk supply. The milk is highly perishable, therefore it must be collected, transported and distributed with extreme celerity. Since our large cities have had to go farther and farther out into the country to get adequate supplies, the transportation problem has become more important.

IMPORTANCE OF THE INDUSTRY

Milk is absolutely essential to human life, and forms, or should form, a large proportion of the daily diet, therefore the public has a right to expect that the price at which this milk is delivered is the very lowest possible price at which milk can be produced and distributed with fair compensation to producer and distributor. So the milk business of a great city makes a fundamental contribution to the public welfare in that it takes on social and economic aspects far beyond that of returning a fair and stable livelihood to those engaged in the production and distribution of the product. The farmers engaged in producing milk for sale in Philadelphia and other great cities have come face to face with some of the problems of our complex American life to a greater degree and in a more intimate

way than probably any other group of our farmers, certainly more so than any other group of equal size and financial importance.

Few people have ever fully realized the magnitude of this great dairy industry. We think of cotton as one of the great American agricultural products and so it is. The United States produces a large part of the world's supply of cotton. We think of wheat as a great agricultural product. It is. The United States wheat farmers grow enough to supply over 110,000,000 people their daily bread and still there is usually a substantial surplus for export. We think of potatoes as an important crop. We all eat United States grown potatoes every day and many of us two or three times a day. Yes, potatoes are important, too.

But the farm value of the milk produced on the farms of the United States is greater than that of the cotton crop, the wheat crop, and the potato crop combined. Of this milk, slightly less than one half is consumed as fluid milk. So the money received from the sale of fluid milk forms one of the most important sources of farm revenue.

EARLY DEVELOPMENTS

Before 1916 in Philadelphia, as in many other American cities, much progress had been made along some lines looking toward the practical and permanent solution of the big problem of an adequate, safe supply of fresh milk. The city had adopted standards for milk which insured its safety as a human food through proper pasteurization or special care and inspection in handling on the farm and in the dairy

when sold as raw milk. The enforcement of these requirements had practically eliminated the possibility of milk-borne epidemics of disease. Another step was the passage of an ordinance providing for the delivery in glass containers of all house to house deliveries. The quality of the milk was further insured by the requirement that all railroad cars carrying milk must be iced during hot weather to insure delivery at Philadelphia at as low a temperature as possible.

Already a number of milk dealers had enlarged their organizations through energy and careful, intelligent, business practices until they had a business of sufficient size to care for seasonal surplusses economically through the sale of by-products, to standardize materially their distribution on wagons, to cut the costs of handling in their plants because of large volume operations and particularly to arrange to secure a regular supply of milk for daily deliveries through country collecting plants where milk could be received from the farmers, promptly cooled and shipped in carload lots to Philadelphia, and where by-products could be manufactured most economically. Some of these plants were already as much as one hundred miles from the city and each one received daily the milk of fifty to one hundred farmers.

These developments, particularly of the country receiving plants, were recognized as a distinct forward step, but the rapid growth and consolidation of big distributors were viewed by the farmers supplying the city with a certain amount of fear and distrust. Milk-shipping farmers had been accustomed to bargain individually month by month for the sale of their milk to individual dealers, each one of whom handled the milk of two or three, and generally not more than a half dozen farmers. If the dealer had too much milk and refused a farmer's milk, the

farmer immediately came to town to sell it to another dealer, of whom there were many hundred in the city. If the dealer needed additional milk or was not satisfied with the quality of that which was supplied him, he went out into the country and visited some additional farmers and bargained with them for their milk. If he could find no farmer who had been shipping to Philadelphia and whose milk was available at the time, the dealer induced one of the butter creamery shippers to stop going to the creamery and to ship to Philadelphia, offering a slightly higher price than that which he had been receiving. All increases in demands on the part of the rapidly growing city were met by movements of this kind.

ORGANIZING THE FARMERS

The farmers began to talk about a "union." There were mutterings such as "down with the middleman." The resistance of the public to any price increase in the face of rapidly increasing production costs brought matters to a head in 1916. It is true that there had been for years in the counties nearest Philadelphia a "Milk Shippers' Union," delegates to which met with more or less regularity in Philadelphia and discussed the milk market situation, but the actual bargaining remained individual in character. The "union" had little or no dealings with the "big" distributors, who largely ignored its existence. It was manifestly impossible for those whose milk went to Philadelphia through a receiving station to enjoy the freedom of bargaining which the so-called direct shippers to small dealers had most jealously retained to themselves.

This situation provided a very fertile field for the formation of a broad organization of farmers to act as a collective bargaining association in arriving at a fair price for the milk of all the farmers delivering to all the

dealers in Philadelphia, both large and small. It was comparatively easy in 1916 to organize the Interstate Milk Producers' Association among the dairy farmers in fifteen of the counties supplying Philadelphia.

GOVERNORS' TRI-STATE MILK COMMISSION

About the same time, some farsighted civic leaders suggested a milk commission be appointed by the governors of the four states supplying Philadelphia, which should investigate the whole milk marketing situation and report back to farmers, dealers and consumers alike. The immediate result of the hearings of this commission was to satisfy the *consumers* of Philadelphia for the first time that, in order to have an adequate supply of milk for themselves and their children, the price to producers would have to be sufficient to enable the farmers to continue in business. The need of an immediate advance in price was clearly shown. The *producers* recognized that in order to market their milk successfully they must have in Philadelphia a sales representative who would be in a position to keep in close touch with the whole market situation from day to day and to act as a bureau of information for the public seeking light on this important food problem. Shrewd *milk distributors* soon learned the value of laying all their "cards on the table" before a fair-minded tribunal of this kind as a means of establishing and maintaining public confidence. It is beyond the scope of this paper to trace in detail the gradual development of the relationships between the producers, distributors and the general public in the Philadelphia milk market from 1916 to the present time. I will refer to only a few events of the past eight years.

The man chosen chairman of the so-called "Governors' Milk Commission" happened to be a young professor at

the Wharton School of the University of Pennsylvania, who was practically unknown at the time to either milk producers or milk dealers, but of whom the public had heard somewhat through his connection with certain investigations of public service corporations. The producers naturally looked with much suspicion on a professor and milk dealers felt they had good reasons for being antagonistic to anyone who asked them to open to him their books to satisfy the public of the fairness of the charge made for collecting, processing and delivering milk. Neither group knew where such an investigation was going to lead them.

The public, which had little or no information to *give*, was naturally interested in the attempts of this young man, Dr. Clyde L. King, to *get* information for them. But he soon satisfied both the farmers and dealers that they could not successfully arrive at a decision as to what was a fair price for milk in the city of Philadelphia without a disinterested party with a sound training in economics being given all the facts and being allowed to interpret them in terms of a fair price. Soon both producers and dealers joined with the public in inviting the good offices of Dr. King as an arbitrator for the milk industry. The coming of the Federal Food Administration placed Dr. King quite logically in the position of milk administrator for Philadelphia and Pennsylvania, and before long, for neighboring cities and states.

CO-OPERATION THROUGH CONFERENCE

The producers (the Interstate Milk Producers' Association) and dealers, for the first time in the history of industry, began to have conferences to discuss their differences as well as mutual problems. At these conferences the questions were those of market

situations and no time was lost in inconsequential personal bickerings. The dealers found that when the representatives of the farmers' organization made a bargain the farmers kept it, living up to the arrangement which had been made. A large majority of the dealers recognized the authority of the Interstate Milk Producers' Association to act for its growing membership, already about 2,500. A few dealers who at first objected to dealing with "organized" farmers soon learned the futility of attempting to ignore the organization.

Throughout those trying years of the war with production and distribution costs mounting daily, the representatives of the producers and of the distributors learned to work together so as to "carry on" the fluid milk industry and distribute milk to the consumers of Philadelphia at as low a price as was possible. Through co-

operative effort, the cost of distribution was cut at every point. The farmer's price, meanwhile, averaged as high or higher than the value of dairy products in surrounding markets, thus insuring as far as possible an adequate supply. But one example of this effort need be given. Through mutual agreement the minimum quartage on milk wagons in Philadelphia was placed at 400 quarts while the maximum delivery per man per wagon in many other cities was 250 quarts. Through stimulation of wagon delivery and discouragement of store delivery, the price of milk to consumers, all delivered at the door, was kept much lower than the price of bottled delivered milk in cities which had large store trade and in most cases the Philadelphia delivered price was but slightly, if any, above the cost of milk on the so-called "cash and carry" plan through stores, common in other cities.¹

¹ MILK PRICES IN PHILADELPHIA AND OTHER LEADING CITIES.

(Quoted from Survey, "Milk Marketing in State," U. S. Department of Agriculture, 1924.)

The position of the market-milk industry in Philadelphia has often been the source of favorable comment. Not only has the price of milk to the consumer been low when compared with the prices of other important foods in the city for several years past, but when compared with milk prices in other cities in this section of the United States it is also low. From the U. S. Bureau of Labor Statistics the following table has been compiled, comparing the retail price per quart of milk in Philadelphia with that of other cities in this section.

Average Annual Retail Price per Quart for Fresh Milk in Certain Eastern Cities of the United States

(Data from the U. S. Bureau of Labor Statistics)

Year	Baltimore	Boston	New York	Philadelphia	Pittsburgh	Washington
	(cents)	(cents)	(cents)	(cents)	(cents)	(cents)
1918	8.8	8.9	9.0	8.0	8.8	8.6
1914	8.7	8.9	9.0	8.0	9.2	8.6
1915	8.8	8.9	9.0	8.0	9.3	8.6
1916	8.9	9.1	9.2	8.2	9.5	9.2
1917	10.7	11.9	11.9	10.2	11.2	11.2
1918	15.6	15.0	14.5	12.9	13.6	14.8
1919	15.2	16.0	16.1	13.6	14.8	16.1
1920	15.9	17.4	16.7	14.3	15.7	17.1
1921	18.	15.7	15.1	11.8	14.1	15.0
1922	12.1	13.6	14.6	11.3	12.5	13.4
1923						
1st 6 mo.	13.	14.2	14.8	12.2	14.	14.

To a casual observer a conference between producers and distributors in the Philadelphia Milk Shed might seem a rather indefinite and unbusinesslike method of settling questions arising from the sale of a daily supply of over 700,000 quarts of milk for Philadelphia, besides many thousand quarts for small cities, the total farm value of which could be conservatively estimated at \$25,000,000 annually. At these conferences, milk distributors and manufacturers of dairy products purchasing milk in the district are invited to attend. The Interstate Milk Producers' Association is represented by an executive committee of seven men. At each meeting, a temporary chairman for the day is appointed. The group which asked for the conference is first called upon to explain the aspects of the market situation which caused them to ask the other group to take such action. Then representatives of the other group are asked to explain their attitude toward the situation. If the farmers feel that the time has come for the increase in farmers' price, they state the reasons for asking for the change. If on the other hand, it is a time when the dealers feel that the market situation demands a reduction in the price, they state those reasons. Then the opposite side states its reasons for differing from, or perchance coinciding with, the position of the group asking for the conference.

One group or the other usually early in the conference makes a definite proposition as a basis for future understanding. The groups then separate to discuss the proposal. Reassembling, the proposal is either rejected or accepted by those present. If rejected either whole or in part, the conference continues.

Such a conference or series of conferences may last all day while the

various situations are developed and explained. If it is apparent that the groups cannot agree as to an understanding for the future, the difference are referred to the arbitrator for adjudication.

Dr. Clyde L. King has acted as an arbitrator by special request of all parties concerned since the early day of the plan. His services are now called for only at infrequent intervals. The policies of the conference are well established, the principles underlying permanently fair price arrangements well understood and a basis of mutual confidence developed through the regular fulfillment by both sides of the agreements so made.

In order that this arbitrator may be at all times in full possession of the necessary facts on which to base a fair decision, the milk dealers regularly supply him with information as to their operations and the producers keep on hand such information as (a), the cost of cows, feed and labor, (b), the value and amount in international market of milk and all dairy products and (c) the price of milk in surrounding fluid milk territories.

A decision having been arrived at it is made public with the reasons therefor. The verbal understanding so made are scrupulously kept by all parties. No formal written contract has ever been needed. A memorandum may be made covering the details of the arrangement, as, for instance, that which explains the so-called Philadelphia surplus selling plan, which has been responsible for the gradual elimination of seasonal surpluses as mentioned in a paragraph subsequent.

GUIDING PRINCIPLES

In arranging prices the following factors are considered:

(1) The cost of producing milk and the returns from milk production as distinct

from the production of other farm products. The test is, after all, the output of milk as compared with the output of other farm production. The cost of producing milk cannot, for long, get out of line with the cost of alternative crops or products.

(2) Equal consideration is given to the market. Comparative market values for important dairy products and the trend in supply are considered. The farmers, furthermore, do not accept the principle that the law of supply and demand is inexorable and they can do nothing about it. Through suggestion and method of price determination they influence the supply and help the dealers influence demand and increase the consumption of their products.

(3) Throughout eight years, stability of the consumers' market has been the first consideration. The farmers have looked upon good-will of the consumers as their greatest asset.

The farmers have believed that collective bargaining has better met their market than co-operative ownership and management of milk distribution, as undertaken by groups of farmers in some other markets. They believe that farmers are as good business men as any other group. The important cities in the Philadelphia Milk Shed have already established distributing plants under efficient management capable of milk distribution at low unit costs. So the farmers settled down to getting every dollar that they possibly could for the sale of their milk.

The farmers have encouraged responsible dealers who could do business economically, and they have discouraged irresponsible dealers and those who could not have low unit costs in their plants. The farmers have not accepted the point of view of many milk dealers that it was none of the farmers' business what the "dealer's spread" was and that it was none of the dealers' business what the cost to the farmer was, and that one should not interfere

with the other. They have felt that the whole process from the cow to the consumer was part of the business of everyone concerned, including the consumer. The farmers have, therefore, insisted that the "spread" to the milk dealers be kept as low as was consistent with the cost of competent milk distribution. For this reason the farmers have adopted the policy of getting the dealers to furnish confidentially to an arbitrator information as to their individual costs. Through this information the consumers' interest has been safeguarded (1) in trying to keep the milk low in price by a low "spread," (2) stable in price, and (3) of as high a quality and standard as possible, without unnecessary seasonal variations. To put it in a sentence, those responsible for the milk industry in Philadelphia feel that milk producing and distributing is a *service*. They are selling *service* as much as a product. It is part of their business to improve the *service*. It is also essential to their business to improve the product. This is a service age.

It has been said by some that the success of this conference method of arranging prices was due to unusual personalities among the leaders of the industry in Philadelphia and that it could not be universally applied elsewhere in the dairy business and in other lines of business endeavor. Were this a one-city proposition, this might, perhaps, be said, but the plan, with variations, is working equally well in other markets: for instance, in Baltimore, Md.; Pittsburgh, Pa.; Detroit, Mich.; Hartford and New Haven, Conn.

GROWTH OF ORGANIZATION

The officers of the Interstate Milk Producers' Association early recognized that it must be more than a simple bargaining organization in order

to perform its proper functions. There has been a gradual development in membership, over 20,000 farmers from 40 counties having joined the Association by 1924. At the present time the Association has a force of eight fieldmen who check the weights and tests upon which its members are paid for milk, and also take care of local problems under direct supervision of the central office.

PHILADELPHIA SELLING PLAN

Following the universal practice the dairy farmers supplying Philadelphia had always been accustomed to let nature very largely arrange their farm practices, producing most of the year's supply of milk in the spring and summer, rather than at such times and in such quantities as the consuming public demanded. In other words, in many sections supplying Philadelphia there were five cans in the summer for every can produced in the winter, though the public uses very nearly the same amount of milk each month in the year. A selling plan² was devised

² The reader may be interested in learning how this selling plan operates. The following quotation from Memorandum of Conference of October 3rd, 1921, explains it briefly:

Each producer shall be credited with the amount of milk delivered by him during October, November and December, 1921. The average production of these three months shall be known as the "basic quantity." These amounts are to be posted at the Receiving Station and duplicate copies sent to the Interstate Milk Producers' Association.

During the following nine months he will receive the basic price for the following percentages of this amount of milk:

January.....100%	June.....100%
February.....100%	July.....110%
March.....100%	August.....110%
April.....100%	September.....115%
May.....100%	

Additional milk produced during these months, if any, to be paid for on the following basis.

A committee of three, one from the producers, one from the manufacturers and one from the

which has now been effective for four years. Under this the seasonal surplus

dealers will check up, each month, the average price of New York 92 Score solid packed butter, as published by the U. S. Bureau of Markets for that month and immediately inform all concerned what this price may be. Payment for all additional milk as above determined to be made according to the following schedules.

No. 1. Producers who have been regular patrons of a receiving station, or regular shippers to a dealer, who have established a basic quantity during October, November and December, 1921, are to receive the basic prices for basic quantity. For an amount of additional milk less than or equal to the basic amount, 92 Score New York Butter plus 20 per cent. For all additional surplus above an amount equal to basic quantity, a price based on 92 Score New York Butter without the 20 per cent premium for the months of January, February, March, April, May and June. During July, August and September all shippers shall be paid for additional milk a price based on 92 Score New York Butter plus a premium of 20 per cent.

No. 2. A. All former patrons at a receiving station or direct shippers to a dealer who make no milk through October, November and December and who, therefore, established no basic quantity, if they resume shipping in January, February and March, shall be paid a price for all their milk based on 92 Score New York Butter plus a premium of 20 per cent. This plan to continue until October 1st, 1922.

B. If they fail to resume shipping until April, May or June they shall be paid a price based on 92 Score New York Butter for the months of April, May and June. For July, August and September the price to those shippers shall be 92 Score New York Butter price plus a premium of 20 per cent.

No. 3. Men starting in the dairy business and who therefore have not established a basic quantity and desire to start to ship milk during any one of the first nine months of 1922, shall be allowed to establish a basic quantity by calculating one half of the daily average of the amount produced by such shippers during the first thirty days of shipment and thereafter counting this as the basic quantity during the remaining months.

No. 4. In case of tenants changing from one farm to another or farm owners selling out and repurchasing a farm elsewhere and who by this procedure change buyers of their milk, it is definitely understood that the basic quantity established goes with the cows.

No. 5. Special cases of one or more producers changing to new buyers are open to agreement

formerly most heavy during May and June has been almost eliminated through careful planning on the farm.

between such producers, buyers and Interstate Milk Producers' Association.

This agreement covers all points in the territory. Any of the three parties interested, that is the distributors, manufacturers and the Interstate Milk Producers' Association, reserves the right to ask for a conference to consider the situation if it feels its interests are being jeopardized thereby.

Example of the calculation of a Basic Quantity:

During the past year, for instance, the production in the Philadelphia Milk Shed has not varied more than 12 per cent at any time during the year.*

Farmer A produced
2,100 pounds milk in October
2,000 " " " November
1,900 " " " December
Average for three months 2,000 pounds.

If 3,000 pounds were shipped in May, or any other month, this would represent 2,000 pounds basic milk, to be paid for at the maximum or basic price and 1,000 pounds surplus, to be paid for as provided in the foregoing agreement.

* *Proportion of Milk Produced by Farmer which was Sold at Basic Price.*

(Adapted from Survey, "Marketing Milk in Philadelphia," U. S. Department of Agriculture, 1924.)

	1920 (corrected)		1921 (corrected)		1922 (corrected)		1923	1924
January.....	85	85	84	84	89	89	87	88
February.....	82	82	84	84	88	88	88	90
March.....	76	76	75	75	82	82	80	86
April.....	75	75	69	69	79	79	80	86
May.....	68	(61)	59	59	67	67	70	77
June.....	65	(58)	64	64	70	70	70	76
July.....	63	(56)	78	(70)	79	(71)	80	80
August.....	67	(63)	74	(67)	77	(70)	80	80
September.....	67	67	74	74	85	(72)	80	82
October.....	100	100	100	100	100	100	100	100
November.....	100	100	100	100	100	100	100	100
December.....	100	100	100	100	100	100	100	100
Average for year....	78	(77)	80	(78)	85	(82)	86	87
Average for first 9 mo.....	71	69	72	(71)	78	(76)	81	83
Average for first 6 mo.....	75.1	73	72.5	72.5	79.1	79.1	79.1	83.8

For each year two columns are shown. The first column was obtained by dividing the combined total monthly receipts of milk, purchased by the leading dealers in Philadelphia (constituting from 60 to 70 per cent of the total supply), into the combined total quantity which these dealers purchased at the basic price. This shows what percentage of the total quantity was bought at the basic price. For some of the summer months, however, this is not a fair comparison. During 1920, for the months of May, June and July the basic amount allowed was 110 per cent of the amount established the previous fall and for August, 105 per cent. Likewise for July and August for both 1921 and 1922, 110 per cent was allowed, and for September, 1922, 115 per cent. To place these months all on a comparable basis, they were reduced to 100 per cent, that is, the basic amount for the month was reduced 5, 10 or 15 per cent according to the month, and the resulting figure divided by the total amount for that month. The second column (corrected) shows the figures which accurately reflect the change taking place. It will be seen that for the average of the year or for the average of 6 or 9 months the basic amount has proportionally increased, with a corresponding decrease in the surplus. This is particularly significant for the months of April, May and June—the months of large surplus. For each of these months the corrected figures for the years 1922 and 1923 show marked increases over the years 1920 and 1921. The data show clearly the effect of the basic-surplus price plan upon the Philadelphia area—that it is tending to make the supply of milk more uniform for the whole year, taking out a part, at least, of the summer surplus.

It was early found that there were apt to be wide variations from time to time between the price paid for farmers' milk in two different cities which obtained their supplies in contiguous territories and in some cases in the same territory. After careful analyses of the milk supply of the Philadelphia Milk Shed, adjustments were made in the prices in the smaller cities and towns within this Shed so as to keep a proper relationship or differential between the prices in the smaller towns and the price in Philadelphia. It was found that if this differential was fixed at approximately the freight rate to Philadelphia, a mutually satisfactory arrangement could be reached. With certain variations and changes from time to time, this policy has been pursued and is now firmly established as part of the practice of the industry in the Philadelphia territory.

PHILADELPHIA INTERSTATE DAIRY COUNCIL

Prominent dairy leaders in the "Interstate" and among the Philadelphia distributors gradually realized that there was a social obligation as well as a business opportunity, which both producers and dealers were neglecting. Milk has long been recognized as a vital human food, but the recent discoveries in the field of nutrition emphasize much more fully the great importance of milk as an all-important factor in the human dietary. Out of this mutual interest and concern has grown the Philadelphia Interstate Dairy Council, an educational organization financed by the industry and managed by an executive committee representing producers and distributors, acting in conjunction with an advisory committee on which are representatives of the various health, welfare and educa-

tional agencies which are, for one reason or another, particularly interested in the milk problem of our large cities.

The Philadelphia Interstate Dairy Council started operations in January of 1921. At the present time it has forty-three employees and does educational work in Philadelphia and other cities and towns throughout the district. The new health program of the American health organizations includes milk as one of the eight important health rules, so the Council recognized that it could best serve the purpose for which it was formed by co-operating in this modern health movement and preaching the food value of milk in its proper relationship with the other health rules, as well as the proper place of milk and its product in a well-balanced diet as recommended by authorities such as Dr. E. V. McCollum and others. A broad platform of this kind had enabled the Council to co-operate extensively in the school health program. During the past year it gave over \$6,000 worth of free milk for the use of undernourished children in special nutrition classes in Philadelphia, Lancaster, Chester and Reading. Lectures on foods have been given before parent-teacher meetings, woman's clubs, and similar groups, while cooking demonstrations have been given to groups of mothers wherever they could be conveniently assembled.

Recognizing the importance of the dramatic presentation of its message, a force is regularly employed to co-operate with the schools in the presentation of health plays by the children before the school assemblies and groups of parents and interested friends. A general publicity bureau is regularly maintained and furnishes publicity material through the press, motion

pictures, fairs and other worthwhile agencies.⁴

QUALITY IMPROVEMENT AND RESULTS

The Dairy Council early realized that it had an obligation to society in attempting to educate the farmers with regard to the importance of improved sanitary standards on the farms, so that the public could be guaranteed that Philadelphia was getting the very best possible quality milk supply. A Quality Control Department was established with at first one worker. This work grew until there were last year four men making tests of the farmers' milk at country plants and holding meetings with groups of farmers wherever they could be successfully assembled. During one year over 25,000 farmers were reached through these meetings. A year ago it was felt that this educational work had now proceeded far enough so that the industry itself could set up minimum standards for the production, collection and distribution of milk voluntarily enforced upon its members and thus guarantee to the public still further the quality of the product. This pioneer quality improvement work is unique.

The members of the Interstate Milk Producers' Association, at its annual meeting in 1923, agreed to be governed by a set of regulations which had been submitted to them in advance for approval. All co-operating dealers agreed to the same procedure. The Quality Control Department of the Dairy Council was designated as the enforcement agency. Its force was increased at once to ten men. Before

June, 1924, 12,000 temporary permits to ship milk were issued to farmers. By November 1 over 12,000 farms had been visited and their proprietors given instructions with regard to improvements needed. Already after six months operation of the new system of voluntary sanitary control, a number of farmers have permanently discontinued shipping because they would not meet the requirements. A somewhat larger number have voluntarily done so because they could not rearrange their barn and dairy in a satisfactory way. More than 2,000 new milk houses have been built. More than 25,000 new sanitary milking pails are being purchased and 15,000 barns are regularly whitewashed for the first time.

The co-operating milk distributors, too, have not been unmindful of their obligations toward quality improvement. All of their country plants are regularly inspected by the same force. Improved mechanical can washers are installed as regular equipment. A few plants have been condemned and abandoned because of such items as an inadequate water supply or antiquated construction.

Definite results of the quality improvement work are as yet not fully apparent. Such a movement has a cumulative value. Its progress must necessarily be like that of a snowball as it gathers momentum in an aroused supporting public opinion in the country communities, and in a public confidence in the city.

Results already attained, however, give ample evidence of the soundness of the principle of self-determination and self-government applied to the regulation of an industry, and what is far more significant, they justify the confidence that was placed in the farmers and dealers to carry out the provisions of the regulations in their daily

⁴ SUMMARY OF DAIRY COUNCIL WORK FOR 1924

Window exhibits.....	244 days
Literature distributed.....	600,000
Moving picture attendance.....	500,000
Attendance at lectures, cooking demonstrations, etc.....	210,000
Attendance plays and talks.....	323,000

work. These provisions entail a considerable additional financial burden for many farmers, but we hear little or no complaint. Occasional non-co-operators, when the facts become known, soon feel the weight of an indignant public opinion. Helpful with suggestion and actual demonstration, sympathetic with difficulties, patient with ignorance, fair in judgment, the fieldman of the Dairy Council can count practically every farmer his friend. Through these relationships the Dairy Council gains 100 per cent loyalty and can number as its "inspectors" the operator of almost each and every farm supplying the city.

Contrast the spirit of this relationship with that under a system of public milk inspectors under the jurisdiction of a city board of health, no matter how wisely regulated or how leniently administered.

It must be recognized that the vital factor in the success of this quality improvement campaign has been the Interstate Milk Producers' Association. The members through eight years of marketing experience had become convinced that such a program was fundamental to a sound marketing system. They recognize the right of the consumer to demand a quality product and that the opportunity to produce such a product is theirs only in so far as they are willing to and do comply with the highest standards of quality that are possible under ordinary conditions of production and distribution. The quality improvement work cannot be considered in any other light than that of an integral part of the whole Philadelphia milk marketing idea, as worked out by the Interstate Milk Producers' Association with the co-operation of the distributors to whom its members are selling milk and with the advice and guidance of Dr. Clyde L. King.

At one milk plant last year there was sometimes as much as two to three thousand pounds of milk rejected daily during the summer period because of inadequate cooling on the farm. This year, after the farms had all been visited, the rejection did not amount to more than two hundred pounds. Buyers are noticing better milk from all sections as indicated by the various ordinary tests by which the sanitary quality of milk is judged.

SOME PRESENT DAY PROBLEMS

Many problems remain to be solved. Concrete roads and insulated glass lined tanks on trucks and railroad cars are helping to reduce the cost of transportation, helping to reduce losses due to waste and spoilage in transit and when increased population and consumption requires it, are aiding to enlarge the Philadelphia Milk Shed. The erection of new concrete roads and the change in price relationships between fluid milk and milk products is bringing about some relocations and readjustments of plants and truck routes. The increasing demand for higher grades of milk, showing an increased discrimination in milk buying on the part of the public, creates a new problem of grade standardization that awaits a more complete agreement. These problems are already being studied. The industry is now so organized that it can care for them.

RESULTS

It is not difficult to show the results of the co-operative activities of the fluid milk industry in Philadelphia, for we can get comparable figures on which to base a comparative estimate. It has done certain things denoting real social and economic progress, which are recognized by those familiar with the situation. Philadelphia has been receiving a satisfactory supply of

milk at a lower price to the consumer than that in corresponding markets in other great centers. During the same period the farmers have received as much or more than the corresponding price received by farmers in the same group of comparable fluid milk markets. The quality of milk from every standpoint—palatability, food value, and sanitary standards—has been greatly improved. The consumption of milk has shown fairly satisfactory increases year by year.

If we should strike a balance and endeavor to determine what are the net results of the last eight years' development of the Philadelphia fluid milk industry, the resultant figures that re-

main on the right side of the ledger are immediately divisible into two classes: (1) the immediate financial returns, fair prices to producers, a satisfactory financial situation for the distributor and low prices to consumers; and (2) a definite practical method for an industry to permanently solve its inter-related problems and at the same time discharge its obligation to society,—in the case of the producer and distributor of the morning's milk, a particularly solemn responsibility.

This experience is at once an answer to those who would question the fairness and stability of the present economic order and a challenge to other groups to give it an honest tryout.

Supply and Price Interactions in Farm and City Products

By H. A. WALLACE

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MANY serious-minded people in this country cannot understand why farmers in times of depression are so easily led to believe that price fixing of farm products may be a good thing. Economists firmly grounded in the teachings of Smith and Mill instinctively feel that price fixing is imprac-

tical and even though it may work for a short time, in the long run it is almost sure to bring disaster to those who thought they were being helped.

In this article the interactions of supply and price will be examined for corn, hogs, potatoes, pig iron and coal for the period 1882-1913. This study

TABLE I—PERCENTAGE DEVIATIONS FROM THE TREND

Year	Corn		Potatoes		Hogs		Pig Iron		Coal	
	Price	Yield	Price	Yield	Price	Yield	Price	Yield	Price	Yield
1882.	6	2	-2	1	36	-2	8	6	7	2
1883.	-3	-5	-23	19	13	-13	-6	-2	-6	5
1884.	-16	9	-26	16	-6	1	-7	-18	-13	3
1885.	-19	12	-12	5	-19	-8	-11	-26	-21	-11
1886.	-6	-6	-6	1	-7	-2	4	0	-22	-13
1887.	17	-14	41	-22	12	-12	27	8	31	-3
1888.	-8	12	-15	11	12	-19	13	8	4	7
1889.	-21	15	-24	6	-17	-3	13	16	9	-1
1890.	44	-12	63	-23	-20	17	20	32	14	5
1891.	17	14	-24	27	-10	11	10	11	14	9
1892.	14	-3	41	-18	52	-35	1	17	9	11
1893.	7	-6	27	-6	22	-32	-7	-15	10	7
1894.	33	-19	13	-18	0	-1	-23	-26	0	-5
1895.	-27	8	-44	30	-14	-7	-15	-2	-9	1
1896.	-39	15	-41	16	-26	-7	-20	-17	0	-6
1897.	-26	-3	12	-19	-23	5	-33	-13	-22	-9
1898.	-20	-0	-16	-8	-26	21	-33	-2	-30	-6
1899.	-18	1	-23	12	-12	5	19	4	-13	1
1900.	-6	0	-16	-4	0	9	17	-3	5	0
1901.	55	-34	46	-24	14	17	-4	5	5	1
1902.	1	5	-12	10	20	-7	23	9	0	-4
1903.	2	-1	13	-5	-14	1	12	3	36	7
1904.	2	3	-18	22	-18	8	-19	-12	-12	-2
1905.	-8	10	9	-6	-9	6	-4	14	0	3
1906.	-14	15	-11	9	8	-4	12	18	8	2
1907.	6	-2	6	1	-27	7	30	14	8	12
1908.	20	-1	20	-10	-6	8	-7	-34	0	-8
1909.	10	-4	-10	10	30	-21	-4	2	-3	-4
1910.	-13	5	-7	-3	16	-23	-5	4	-3	1
1911.	7	-10	33	-17	-9	6	-11	-14	-3	-4
1912.	-19	11	-17	17	10	-10	-4	4	-3	0
1913.	10	-12	14	-7	14	-11	6	5	4	3

brings out in concrete quantitative fashion what farmers have been instinctively feeling for the past 60 years: that there is one law of supply and demand for city products and another for farm products.

The table on p. 243 gives percentage deviations year by year for both price and yield for the three farm commodities and the two basic commodities used in manufacturing. In the case of corn and potatoes the deviations are from a curved line of secular trend as figured by H. L. Moore and presented in the February, 1921, issue of the *Quarterly Journal of Economics*. The yield deviations for pig iron and coal are also from the same source. I have myself figured the price deviations of pig iron and coal, using the same type of secular trend as a base. In the case of hogs I have used the winter packing figures of the *Price Current Grain Reporter* and have used for the secular trend two straight lines, the two overlapping in the decade of the nineties and being united into one figure by a system of weighting. The final results are substantially the same as though a curve had been used.

Using the deviations as presented in Table I as a starting point, curved regression lines of the type $y = a + bx + cx^2$ were calculated for each of the five products. The price deviations were used as the dependent variable and the yield or supply deviations as the independent variable. The respective equations were as follows:

Corn:

$$\text{Price} = -2.05 - 1.26 \text{ yield} + .0157 \text{ yield}^2$$

Potatoes:

$$\text{Price} = -3.74 - 1.55 \text{ yield} + .0206 \text{ yield}^2$$

Hogs:

$$\text{Price} = -5.47 - .79 \text{ yield} + .017 \text{ yield}^2$$

Pig iron:

$$\text{Price} = 4.2 + .835 \text{ yield} - .01812 \text{ yield}^2$$

Coal:

$$\text{Price} = 1.85 + 1.29 \text{ yield} - .0375 \text{ yield}^2$$

Expressing these formulae in tabular form we get Table II. (See next page.)

It will be seen from Table II that a shortage of more than 25 per cent in the supply of corn, hogs or potatoes tends to raise the price by more than 25 per cent. There really was a strong tendency during the 1882-1913 period for small crops of corn, potatoes and hogs to sell for a greater total than large crops. The prices predicted from the curve of influence of yield on price correlate with the actual prices as follows:

Corn ¹	.77
Potatoes.....	.91
Hogs.....	.72
Pig iron.....	.57
Coal.....	.59

The outstanding feature of the situation is that with pig iron and coal the greater the production, the higher the price. Of course this is an economic absurdity. It cannot be true even though we have perfectly good figures for the years 1882-1913 to prove it. Of course the truth of the situation is that with most mined or manufactured commodities prices come first and supply comes second. In agriculture, supply sets the price. In industry, price sets the supply. Philosophically it was a statistical mistake to look on price as the dependent variable and supply as the independent variable in the case of pig iron and coal.

THE FUNDAMENTAL DIFFICULTIES

Forgetting the details of statistical method for the remainder of this article, we shall endeavor to point out the fundamental difficulties in the farm situation. In the first place in agriculture

¹ Please note that since these correlations are between predictions from the regression curves and the original price deviations, they must needs be positive in every case. Of course the regression curves for the agricultural products have a negative slope.

TABLE II

Deviation in Yield Per Cent	Deviation in Prices Indicated by Formulae for Yield Deviations				
	Corn	Hogs	Potatoes	Pig Iron	Coal
-42					
-40					
-38					
-36					
-34	59	42		-45	
-32	55	37		-41	
-30	50	34		-37	
-28	46	30		-33	
-26	41	27		-30	
-24	37	23	45	-26	
-22	33	21	40	-23	
-20	30	18	35	-20	
-18	26	15	31	-17	
-16	22	12	27	-14	
-14	19	9	22	-11	
-12	15	6	18	-8	-20
-10	12	4	14	-6	-15
-8	9	2	13	-4	-11
-6	6	0	6	-1	-8
-4	3	-2	3	1	-4
-2	0	-4	1	2	-1
0	-2	-5	-4	4	1
+2	-4	-7	-7	6	4
+4	-7	-8	-10	7	6
+6	-9	-9	-12	9	8
+8	-11	-11	-14	10	9
+10	-14	-11	-17	11	10
+12	-15	-13	-19	12	11
+14	-17	-13	-21	12	
+16	-18	-18	-23	13	
+18		-14	-25	13	
+20		-14	-26	14	
+22			-28	14	
+24			-29	14	
+26			-30	14	
+28			-31	13	
+30			-32	13	
+32				12	
+34					
+36					
+38					
+40					
+42					
+44					
+46					

there are millions of small units freely competing. Supply determines price. There have been no concerted efforts to determine the price first and then to mold the supply to fit that price situation. Possible exceptions to this rule comprise only a few minor commodities such as raisins and tobacco. Farmers find it difficult to follow in the footsteps of the industrialists in molding supply to price for the following reasons:

(1) There are a thousand times as many farmers producing staple farm commodities as there are industrialists producing coal, iron, etc.

(2) Farmers are separated by distance, prejudice and ignorance.

(3) The size of the supply of farm crops depends largely on weather and to a lesser extent on insects and diseases, over which very little control can be exercised.

(4) Farmers for the most part have a large number of middlemen between them and the consumer and these middlemen feel that it is their function to determine farm product prices rather than the farmer.

(5) There are many types of farmers producing the same commodity. Certain poor tenant farmers and owners with large mortgages may be willing for a time to sacrifice completely a decent white man's standard of living in order to produce and sell on a demoralized market at far less than a reasonable cost of production. Imagine the chaotic price situation in pig iron if each workman had a few tons to sell and if he sold them on the basis of his individual necessities rather than the general pig iron situation.

Industrial concerns from time to time have met many of the farm difficulties just enumerated. In new businesses there have been times of cut-throat competition with the weaker concerns setting the pace and bringing ruin upon themselves and, temporarily, hard

times on the entire industry. But in every industrial situation of this sort there is eventually stabilization accompanied oftentimes by merging of big corporations. There is careful cost accounting and usually tacit price agreements. This is not the free competition visualized by the classical economists. Nevertheless, the "live and let live" policy adopted by most stabilized industries is looked on as being beneficent and better for all concerned than free competition.

STABILITY FOR FARMER

The farmer is still engaged in cut-throat competition with his fellows. He gambles continually on weather, pests and prices. For all his risks, the capital he uses has never brought the same rate as capital employed in industry, and his labor has not brought the same return per hour as labor employed in industry. And yet the hunger of men for land and for the seeming independence of the great open spaces has been so great that we do not lack for farmers in the United States. Moreover, there has been the lure of a possible speculative profit as a result of the higher land values.

The true farmer is no business man and has no desire to be one. His great joy is and should be in the efficient production of high quality crops and livestock. Farmers of this sort can furnish the backbone of a fine and enduring civilization, provided they are not unduly harassed by wildly fluctuating prices of farm products and farm land. They need the same price certainty in their business as industry has. A comprehensive type of insurance must be worked out to take care of the weather hazard. Prices must be used more and more to determine the volume of the supply instead of the reverse as we have it today.

Now it is conceivable that both the

crop insurance situation and the price situation may eventually have to be handled under government supervision. The people who are sticklers for things as they always have been can see nothing serious in farmers producing under one type of supply and demand, whereas industry produces under another type. They do not realize that the farmers are 100 years behind labor and capital in their organization and that there is no immediate prospect of farmers closing up the gap. None of the myriads of farm co-operative organizations have been able to work out as effectively as the pig iron and coal people the problem of letting price determine the volume of production.

Producing food is handled today on a

totally different economic theory than producing industrial products. As to whether a satisfactory agricultural civilization can be built up under such a situation is doubtful. The tendency for the people in the cities will be to avoid any careful study of this problem. They are interested in an ever more powerful industrialism, even though it may mean peasantry on the farms.

Individuals are concerned only with the possible events of the next 50 or 60 years. Governments should take into account the possibilities 100 or 200 years hence. Can the government of the United States afford to let our farmers battle in their own inadequate way with the double hazards of weather and price?

Fitting Production to the Market

By ROBERT J. MCFALL
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THE business of farming, even under the best of management, is unable with complete success to adjust its production to the changes in market demand. The extreme influence of the weather and the long time necessary to alter a farming program make the quantity of agricultural production very inelastic in its response to market conditions. Fortunately for the farmer, the fluctuations in consumption of food products are not so severe as are the variations in demand for some other less constantly necessary commodities. Nevertheless, recent history has shown emphatically that there are real changes in the effective demand for our farm products, not only as regards total quantity of all products, but also shifts in demand from one product to another and from one quality or class of product to another. Many of these changes, moreover, are sufficiently slow in their movements to make corresponding modifications in the agricultural production program at least partially possible. The near future also promises changes in the demands for food products which may be anticipated and met by changes in production.

EXPANSION THROUGH ACTUAL DEMAND

One of the most important principles in marketing is the desirability for the programs of production and aggressive sales to meet the real demands of the market. In many industrial lines new demands can be constructed and old ones greatly enlarged through advertising. In such successful cases the potential demand was in existence, as

many unsuccessful sales campaigns testify. When we turn our attention to the market for farm products, particularly foods, we find less true opportunity for building up increased total demand through advertising and related marketing policies. One food may capture the market for another food, but there is little chance of stimulating a demand for more food. As a nation we are already the heartiest eaters on the globe. The "submerged tenth" may be undernourished, but new demands of consequence cannot readily be successfully cultivated in that quarter. And there does not seem to be sufficient tendency toward overeating in the nation to afford a successful basis for any material expansion in the per capita consumption of one food excepting at the expense of the sale of another food.¹

If it be a fact that attempts to increase demand for particular food products reduce themselves to practically nothing else than an expensive form of competition between farmers to capture the same demand and the same dollar, it must necessarily be that this is the wrong way to attempt to fit together the production and the market. The better way is for the producer to study his market and shape his production to meet the existing demands, limiting his advertising program to the direction of attention to the desirable products.

A few years ago it was charged against our exporters of merchandise that they failed to study the foreign

¹ Taylor, A. E.; "Consumption, Merchandising and Advertising of Foods," *Harvard Business Review*, April, 1924, pp. 282-295.

demand and attempted to ship merely a surplus of goods which they happened to have for sale. An example was given of the shipment of collars marked in inches to South America where only the metric system was known. This was a "horrible example" used by the teachers of foreign marketing. It would not be difficult to find many such examples today in the field of domestic marketing of farm products. It is hardly an exaggeration to say that the main call for marketing advice since 1920 has been for help to dispose profitably of farm products produced without any real idea of what the market wanted in quantity and quality. The farmers have produced what it suited their personal notions to produce and then called for marketing panaceas to help them dispose of their products at a profit.

The idea is slowly gaining ground that, especially in agriculture, good sense dictates that the demand must first be ascertained and that the best efforts must then be made to meet the quantity and quality called for in that demand. It will be difficult ever to make the quantity of production meet the demand with any great degree of nicety, unless the weather can be foretold with an accuracy unknown at present. Relative demand for the various farm products can, however, be met more closely than has been the case in the past and quantity adjustments are by no means impossible. The quality of products and their preparation for the market are continuously being fitted more closely to the true demand. The U. S. Department of Agriculture is doing excellent work in presenting to our farmers the demands of the foreign market. The Massachusetts Department of Agriculture is doing some valuable work in ascertaining the facts regarding its local market demands and presenting them to local farmers.

These are but samples of real effort directed to the solution of this general problem.

The real basis for an expansion of outlet at home for farm products lies in the increase in our population. About 1,500,000 more mouths are added to the consuming population each year. The resulting increase in domestic demand bids fair to absorb the equivalent of all our food production. In fact, as already noted elsewhere,^{1a} for two years before the war and again this last year the home demand has absorbed somewhat more food than the domestic production; exports have been more than offset by imports. Even when imports are disregarded, only 17 per cent of our crop area was devoted to the foreign market on the average during the years 1914 to 1922.² Since this period includes a number of years of very great export, it may be assumed that nearly 90 per cent of our farm land today is devoted to the home market. On the whole, during the past twenty-five years the growth of our population has exceeded the rate of increase of our farm products.

RATIO OF FOOD PRODUCTION TO POPULATION

In view of the very pessimistic ideas so popular of late on the possible early shortage of the food supply to meet the needs of our growing population, it is necessary to insert a few words of caution here to avoid a possible misunderstanding. It is quite unsafe to draw the ordinary conclusions from many of the data frequently used for such a purpose. The fact that agriculture has already spread itself over most of the best land in the country does not prove that expansion of food production is near an end. Nor does the failure of crop area and livestock

^{1a} P. 129, *infra*

Agriculture Year Book, 1923, p. 457.

population expansion to keep pace with the increase of the human population prove a sure decrease in the per capita food supply. Crop acres and livestock population statistics are poor indexes of food production throughout a long series of years. We have pointed out elsewhere that the French meat production about doubled from a very slightly increasing cattle population in a period before the war. Food production has more nearly kept pace with population growth in the United States than popular indexes of the situation would indicate. Dr. L. C. Gray and collaborators have shown that by adopting even the average productivity of the lands in Germany, France, Belgium and Great Britain a population of 350,000,000 people could be maintained, or, if we cropped as intensively as Germany, and adopted her prewar standards of living, which were almost equal to our own in the per capita use of calories, we might possibly feed 574,000,000 people.³ As we have already shown in the pages of *The Annals*,⁴ it is highly probable that other factors limiting our population growth will be more rigid than the one of food supply. Dr. Raymond Pearl accepts such a possibility and sets a limit on the probable population of the country of less than 200,000,000.⁵

Such highly credible estimates lead us to conclude that it would be physically possible, even with our present knowledge of agricultural technique, to expand our food production more rapidly than the domestic demands are likely to increase. Nor is there any real proof that such an increase would, if conducted gradually, cause an unwanted increase in the cost of the products. The readiness with which the

nation's farms developed their output during the war with millions of men under arms and the factories out-bidding for the labor that was available, shows the present potential capacity for expansion of farm production. However, there are other reasons which lead us to suppose that the expansion of farm output will tend to lag behind the increase in the domestic demand and that, accordingly, the home market will be the main one to which our farmers must cater. These reasons are based upon factors which we anticipate will control our international trade.

FOREIGN MARKETS AND HOME EXPANSION

The whole matter of international trade is more intricate in its inner spurs to activity than is sometimes supposed. Why is Denmark an exporter of food-stuffs and England an importer? British farming lands are superior to the Danish and England was a leader in agricultural technique when Denmark was just thinking of the possibilities of modern farming. In the last half century the agriculture of the one nation has progressed rapidly, that of the other has declined markedly. The reason lies not in the direct physical possibilities of farming in the two countries, but in the balanced forces of international commerce and the many intricate factors which actuate these forces.

It is an accepted fact in the science of commerce that trade cannot move in one way alone. In common thought this elementary law is often neglected. Exports necessitate imports.

It is just as true that when a nation develops its industrial and commercial life to the point where a foreign market is necessary to afford an outlet for full-time activity, a large place in such foreign markets will be held by newer countries who are in a position to ex-

³ *Agriculture Yearbook*, 1923, pp. 497-498.

⁴ *Annals*, March, 1924, p. 257.

⁵ Pearl, Raymond. *The Biology of Growth*, *The American Mercury*, Nov., 1924, pp. 293-305.

port food and other agricultural raw materials. The only possible result is that the industrial nation must accept farm products in return for industrial goods and commercial services. England has chosen to develop her industrial and commercial life. The choice was thrust upon her by natural resources and other economic forces. Accordingly, so long as there are lands specializing in farming and so long as it is profitable to expand the output of the industrial "machine" to the point where these agricultural lands must afford a market, just so long will a nation such as England be a food importer.

Nations such as Denmark and the Argentine, which have practically no power and other essentially industrial raw materials, must expand their farm exports, if they expand commercially at all.

We have spoken of foreign lands, partly to make more clear the foreign situation, but largely to illustrate more clearly the possibilities in our own position. The greatest single factor which determines what elements will be most important in the outside commerce of any country is the comparative ability of that country to supply various goods and services. Here the primary comparison is not between countries. It is strictly a domestic comparison. A nation supplies those things for export which it can supply more effectively than other possible claimants for export. The immediately determining factor in pushing one thing at the expense of another is the economic organization of the country. Back of that are natural economic facilities and raw materials.

The United States is peculiarly well supplied with natural economic advantages for an expansion of the industrial and commercial side of our life. It is a question if any other nation has natural advantages which can equal ours in this

direction. Many other nations are so situated that agriculture is their most profitable opportunity. Our farm resources are as yet more magnificent than many pessimists allow, but they are overshadowed by our opportunities in other directions. Moreover, even with equal national opportunities for expansion between farming and urban industry, the latter would take the lead, for it offers the best outlet for the organizing ability of our men of business genius.

CATERING TO HOME DEMANDS

We are accordingly driven to the conclusion that our agricultural development will follow behind our industrial and commercial development and that the future offers a better promise for agriculture to cater to the demands of a prosperous population in our own land than to battle for a large share of the export trade in competition with the stronger forces of our industries.

This does not mean that all farm exports will disappear. Some particular commodities will have peculiar advantages on the world's markets. The questions related to particular products are discussed elsewhere.⁶ It does mean, however, that the main market demand which our farmers and their advisors should study is the home one rather than the more alluring one in distant lands. It is to this domestic demand that quantity, type and quality of our production should be adjusted. From the public standpoint the adjustment should include a surplus margin of safety to insure ample home supplies. The interests of the farmers probably suggest that the surplus should not be general but consist in those products, already discussed, which we may continue with profit to supply to the foreign market. On such a program a rate of expansion of agriculture com-

⁶ See page 154.

parable to that of the last census decade would be required.

It is probable that the home market will in the long run offer better prices than that of foreign countries. The studies of the National Bureau of Economic Research show clearly that the average level of income is much higher here than abroad. A study of the relation between prices and average incomes by communities doubtless would show that the areas with the highest incomes offered the best potential markets. Dr. Gray speaks of the "straw man," of the saving to the farmer of freight charges when any commodity changes from an export to an import basis.⁷ In its popular form this idea contains nil fallacies, but the rapid rise of domestic beef prices as compared with foreign beef prices in the decade before the war, when our export was disappearing, indicates that there is a very stout stick in the straw to support the "straw man." Whether or not the resulting higher prices bring greater profits to the farmers is another question.

The character of our home demand becomes of large interest if we admit that its expanding quantity will dominate our agricultural situation. The character in general consists in a desire for foods having the more appetizing qualities. As a nation we do not tend toward a monotonous diet, nor would we be at all satisfied with a diet merely because it contained sufficient calories. We are not heavy consumers of cereals, but we are heavy consumers of animal products in general, and fruits and fresh vegetables, which necessitate a large use of agricultural effort per calory in production.

MEAT CONSUMPTION

It has frequently been stated recently that our meat consumption is

⁷ See page 164, *infra*.

falling. This unwarranted assumption has been based upon too superficial study of the available statistics. Official data on per capita consumption of meat were started as late as 1907. This is unfortunate, for conditions have contained many disturbing factors since that time. Comparisons between the consumption in 1907 and in 1921 are misleading. In 1907 the production of animal products was above the average for the period and the purchasing capacity of the masses was comparatively high for the average of that year. In 1921 the livestock population was below its general trend and so also was the popular purchasing capacity. A much more enlightening comparison is between 1907 and 1923. In the latter year the livestock population was not so far above its normal as in 1907. The popular purchasing capacity was more comparable with the earlier period. In 1923 the per capita consumption of meat and lard was 183.4 pounds as against 179.8 pounds in 1907. The gain was all in pork products. During the earlier part of the period beef consumption was discouraged by the very rapid rise in price which occurred, when the western range became limited, attaching beef production more closely to true agriculture than to the "mining" of natural resources, and changing our export surplus to a net import. Moreover, beef consumption in particular has in the past few years been subjected to a great deal of antagonistic propaganda, part of which has been paid for out of public funds voted for the development of agriculture. Nevertheless, with all these handicaps, the amount spent on beef, its purchasing capacity deflated to a common level, has only decreased by 6 per cent from 1907 to 1923.

The actual increase in consumption of meats and fats in the last eighteen

years has come with about the same export in the two years and a declining number of livestock per capita of the human population.⁸ This fact shows clearly that the numbers of livestock are but a faulty index of the production of meat. As in France, the meat production per thousand live animals counted on the farms has risen markedly.

This very slight increase in consumption of meat products in the last two decades is superimposed upon what probably would be recognized as a very marked increase in the preceding half century, were the statistics available to picture the situation properly. In the nineties the number of livestock per capita of the human population was the same as in 1850.⁸ Statistics are not available to show the changes in meat production per thousand head in the flocks and herds, but ample evidence shows that during that period, with the passing of the light Texas steer and the greatly reduced slaughtering age of the typical meat animal, and consequent increase in proportion of animals slaughtered each year out of the herds, the production of meat has very greatly increased. This increase of production must almost certainly have been sufficiently great to allow for the export of from 10 to 15 per cent at the end of the period, and a material increase in the consumption.

The sugar statistics show clearly that the consumption of this enjoyable food has been very greatly increased.⁹ Statistical data are inadequate in other directions to show the situation very clearly. However, there has probably been an increase in the use of dairy products and of fresh fruits and vegetables other than the rougher potatoes. Modern storage and transportation facilities have given these latter prod-

ucts a wider use throughout the year.

All of these products, unless possibly sugar, call for a larger use of agricultural employment per calory than the coarser foods. This is greatly to the advantage of the farmer, for it increases the demand for his services. This expansion of demand for more elaborate services has corresponded roughly with periods of rising city wages. During the latter part of the last century the rise of wages was most marked. Unfortunately for the farmers, the great increase in farm production obscured this advantage at that time. During the last three decades the rise of wages has been less marked in comparison with the changed value of the dollar.

Nevertheless, over the ups and downs of the period, the purchasing power of wages has increased somewhat per unit of effort¹⁰ and some advantage thereupon has accrued to the farmer. Studies conducted in Boston¹¹ on the purchasing habits of consumers show clearly that the use of the foods requiring most agricultural energy per calory, such as animal products, are sought after more keenly among the better paid elements of the population. In other words, this underlying factor in demand is true in comparisons made at the same time among different elements of the population as well as during historical developments.

FUTURE OUTLOOK

What the future will bring forth in the development of popular prosperity is not fully revealed. The pessimists preach trouble from European competition. For the long run our magnificent natural resources and comparatively good economic organization lead us to be hopeful of increasing prosperity for the masses.

¹⁰ Douglas, Paul H.; unpublished Ms.

¹¹ Files of the New England Research Council on Marketing and The Food Supply.

⁸ *Agriculture Yearbook*, 1923, p. 439.

⁹ *Agriculture Yearbook*, 1923, p. 846.

Those particular farmers who keep up to the times, as well as those few who cater to an insistent demand from abroad for a limited amount of special products, should find prosperity ahead. It is not our part at present to suggest particular lines of effort which should be followed in such a catering to the real market demand. That is a perennial task for the farmers themselves and their advisors. We merely venture to suggest that such a task exists and that its careful performance will be of more value to agriculture than a competitive advertising and pushing of one food at the expense of another.

The individual farmers who follow the best practices in marketing and adjusting their supply to market demands will prosper. However, does such a program hold forth any hope to the masses engaged in agriculture? Classical economic teaching was called the "dismal science." Its teachings of the free working of competition leave no

room for real profit to any farmers but those whose methods are superior to those of the masses. If we could accept the theory that the possibilities in agricultural expansion were more limited than the probable increase of our population, we might anticipate a large unearned increment for the farmers in land values. However, farming will be better off the less it is mixed with land speculation and the less it is subjected to the competition of farm products turned out by land speculators. Assuming that the increase in land value will not have an over-weaning importance in the near future, what of the prosperity of the masses engaged in progressive farming? It would appear that, since competitive forces operate much more slowly than is sometimes supposed and since the future domestic demand promises to call for a constantly expanding quantity and improved quality, the average farmer can look forward to the future with a fair degree of assurance.

The Place of Advertising in American Agriculture

By GEORGE F. JOHNSON

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THE possibilities of advertising agricultural products have come to the attention of farmers only in very recent years. The phenomenal growth of co-operative effort among farmers has been instrumental in this. With the exception of advertising pure-bred livestock and certain other specialties, very little advertising had been done in an extensive way until about the time of the World War. This was due partly to a lack of appreciation of the importance of advertising and partly to the very distinct limitations of any one farmer in advertising a product such as wheat, milk or eggs, produced on so many farms.

Another reason why the general use of advertising in agriculture was delayed has been the false conception that existed for some time relative to price control. There was the very definite motive among some co-operative marketing associations of exerting a type of monopoly power giving arbitrary price control. There was, of course, little place for advertising in a policy of this kind. Later developments, however, have amply demonstrated the fallacy of arbitrary price control and, as a result, emphasis has shifted to the stimulation of demand as a means of maintaining a profitable price. It is at this point that advertising came to the front.

For the purposes of the present discussion, consumable products produced on the farm can be roughly classified into the following three groups:

- (1) Those products which are produced in the form in which they are consumed, such as

fruit and vegetables, eggs and honey.

- (2) Those products which must be processed on the farm or in a local factory, often owned by farmers themselves, such as dairy products.
- (3) Those products which must undergo much processing in plants not usually owned by farmers, such as wheat, other small grain, and livestock.

In the first two groups, advertising is largely a matter of initiative on the part of individual farmers or of combined effort through co-operative organizations. In the third group, co-operation with the processors and other middlemen must be accomplished before extensive advertising can be effectively used.

PREREQUISITE OF SUCCESSFUL ADVERTISING

In order that farmers may do advertising on a large scale, an organization is necessary. This ordinarily means commodity organization and, even more than that, a purely co-operative organization to which each member contributes his support and from which each enjoys a common benefit. A second important essential is that of quality production and sale. This means standardization of package and label and payment to the growers according to the quality of the product produced. Standard grades are paramount in successful advertising. Unless the grades are kept uniform and dependable regardless of seasonal differences, the results of advertising will be uncertain, to say the least. A third

essential is that of knowing the market from both the geographic and seasonal standpoint. Several years ago the California prune and apricot growers made an investigation through their brokers before starting to advertise. What they found among other things was this: All classes of people eat prunes, though the larger per capita consumption is among the middle class. The largest per capita consumption was likewise found in the territory from the Atlantic Ocean to the Mississippi River and north of the Ohio River. Knowing these points, the advertising was timed and placed accordingly.

By a study of their markets, the cranberry growers found a heavy shipment in September which temporarily overstocked the market and had to be held by jobbers and wholesalers until the Thanksgiving or Christmas sales, thus causing extra expense and needless waste. This uneconomic condition was remedied by co-operation and advertising. Co-operation made it possible to hold back some of the shipments on the one hand and to stimulate the demand by advertising on the other hand so that more sales could be made during the pre-holiday season. The lemon and walnut growers had much the same problem and they have solved it in part at least by advertising new uses for their products during the "dead" seasons.

VALUABLE INFORMATION OF SURVEYS

Knowing what features appeal to consumers and what mediums will reach the desired consumer is also essential in effective advertising. A recent study of consumers' demands for dairy products in Philadelphia, made by the state and Federal government, revealed some rather interesting facts on advertising milk. Four hundred representative families were interviewed.

The question, "Where have you seen fresh milk advertised?" was asked, and the answers showed that 46 per cent remembered seeing some form of advertising. "Newspapers" was the most frequent answer, while "dealers' wagons" was second. Besides featuring names and trademarks, some dealers had slogans on their wagons and trucks that emphasized different qualities found in their milk. Billboards ranked third, street cars fourth, and movies fifth. The Italian and poor classes of people had seen the least of this advertising, while the well-to-do and wealthy classes had seen the most.

Another question asked was, "What do you remember about the advertising you have seen?" Two-thirds of those who had seen fresh milk advertised remembered some particular feature of the advertising. Food value was found to be the feature most often remembered; quality came second; the dealer's name, third; cleanliness ranked fourth; freshness, fifth; good for children, sixth; and price was mentioned only twice. It is rather significant that price was not more often remembered as a feature in advertisements.

An attempt was made to find out what particular feature of milk influenced the consumer most. Accordingly the consumer was asked what special features should be advertised. About 70 per cent of those interviewed offered some suggestions on this problem. Food value ranked first as the best argument in favor of using milk. Quality ranked second, cleanliness, third, and health, fourth. It is such information as this that farmers must gain if advertising is to be made most economical and effective.

ADVERTISING ONLY ONE FEATURE IN SELLING

It is a mistake to speak of advertising as something separate from other

features of marketing and selling. In agriculture, a successful advertising venture starts with the preparation of the seed bed and the seeding, with the pruning and fertilizing of the young tree, or with the breeding, feeding and care of the young animal. Once a high-grade standard product is produced, a good foundation for advertising is laid. Next, and very important, is the marketing and distribution of the product. This distribution must be timely and appropriate to meet the consumer's needs. The product must be placed before the consumer at the time, in the place, and in the form it is desired. Advertising, in other words, is simply one block in the great structure of selling. This applies in agriculture as well as other industries.

Before advertising can be used as extensively in agriculture as in other industries, it will be necessary to grade and standardize farm products much more generally than is being done at present. So long as farmers were producing commodities of all sorts and selling them without regard to grade, there was no place for a well-directed advertising program. This practice has changed rapidly during the past few years, however. Recent developments in standardization and sale by grade, stimulated by the Federal and state governments, are important steps toward higher standards in farm selling. For example, when fruit-growers in a given community or district co-operate, grade their fruit under state or Federal inspection, and then sell in standard packages carrying the stamp "U. S. No. 1" or other grade designation, it is not only possible to eliminate much waste and risk in marketing but also to use advertising to good advantage.

The mistake has been made of going into advertising haphazardly, without knowledge of the principles involved or of what a reasonable expenditure might be. As one co-operative association manager has said:

One cannot emphasize too strongly to a beginner in the advertising game that better results will be obtained by starting off on a small scale with a well-planned campaign than by starting off with a large appropriation and no plans.

A common practice among new co-operative associations, just starting an advertising venture, is to start with an appropriation large enough to put on an effective local campaign in one or two important consuming centers. This experience enables them to make more extensive campaigns in succeeding years without waste of effort and money.

All that can be done by advertising is by no means a settled point. A number of things have been accomplished by some of the larger co-operative marketing associations, especially those operating on the Pacific Coast:

- (1) It has been possible to enlarge the basic market;

- (2) To spread a distinct seasonal demand into a longer and more uniform demand;

- (3) To create consumer and trade preference for a particular brand of products;

- (4) To develop better packaging and other improved merchandising practices;

- (5) To promote the adoption of standard grades with the consequent development of new incentive for the production of higher grade products.

Scientific Nutrition and the Farm Output

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THE science of nutrition is so new and its results are so little understood by the general public that it may fairly be said that it has scarcely been applied to farm conditions in order to demonstrate its economic value. That this new science will contribute in a large way to increase the efficiency of the farm output no one who is familiar with the effects of diet on animals can doubt.

Improvements in agriculture began with the improvement through selection of the wild ancestors of our cultivated plants. This process is still going on. Agriculture was greatly advanced through the invention of effective farm implements. Chemistry has contributed a knowledge of the nature of the soil and the composition of the plant sufficiently complete to give us an understanding of the nature and kinds of fertilization which promote plant growth and prevent soil exhaustion. The efficiency of the farmer has been advanced through the development of special varieties of crops suitable for particular types of soil and climate. Improved transportation has extended the range of profitable agriculture. Up to the present time, however, the farmer has been essentially ignorant of the principles underlying the effective use of the products which he has produced, either in the feeding of his children or his animals.

The science of nutrition is not yet mature, and so it is not possible to predict with any degree of certainty how effective an aid it may become for the advancement of human health and happiness, or for promoting the economic welfare of the nation. It is

certain, however, that we are now in a position to avoid some of the more important mistakes which have been made in the past by no small proportion of even fairly successful farmers.

The writer well remembers several occasions in his boyhood on a farm in eastern Kansas, when a hundred or more pigs were converted into unprofitable runts by being kept in a dry lot and fed for a time solely upon corn. No better example of the denseness of ignorance of even the simplest principles of feeding can be given than to point out that fifteen years ago no one seems to have been aware that a hog could not grow if fed all it wanted of one of our common cereal grains.

THE NECESSARY PROTEIN SUPPLY

A brief summary of the newer viewpoints in nutrition will make clear the manner in which this branch of science can apply to agriculture. It has been fully demonstrated that there are pronounced differences in the constitution of the proteins, or flesh-forming principles of foods, depending upon their source. Each species of plant has proteins of an architecture different from those of any other species, and even the different parts of the same plant, *e.g.* the leaves and seeds, contain proteins of kinds which have very different composition. A protein is made up of about twenty kinds of simple units which are liberated on digestion, but in the protein molecule these are united in chain-like arrangement, and the nature of the protein is determined by the proportions among the different digestion products, and by the order in which they are united. Many millions

of different combinations of this number of the so-called building stones, or amino acids, are possible, and so as many kinds of proteins may possibly exist.

The nutritive value of any protein is limited to the extent to which the products of its digestion can be rearranged to form the body proteins of the animal which takes it as food. It is known that many of the food products contain proteins which are not very efficient for promoting growth. It is well established, however, that the proteins from two different sources may be each of poor quality when it serves as the sole source of protein in the diet, yet, when taken together, they may make good each other's deficiencies and constitute a very efficient protein supply. Since protein is the most expensive component of a ration for farm animals, it follows that an understanding of the combinations of foods which yield proteins which are utilizable to an extent of 50 to 65 per cent, as are some, makes possible a far greater efficiency of utilization of the feeding-stuffs available than would be realized if proteins of half these values were fed, as is not infrequently done.

Remarkable results have been achieved through breeding animals for milk production, and in this work it has been found that cows with very great capacity as producers are likely to show signs of deterioration in other respects, especially in fertility. There is much reason to believe that the limiting factor in milk production in animals of the higher classes is the nutritional one. This may be illustrated by a consideration of the protein factor, although this is by no means the only one which enters into the successful feeding of farm animals. The cow cannot make milk without materials with which to do it. She has little or no capacity to produce synthetically the

twenty digestion products of proteins, and a deficiency of any one of these in the food will absolutely limit the extent to which those present in the food can be utilized. Animal husbandmen are now interested in determining whether or not the limit hitherto set to production in the dairy cow is not found in the extent to which a rearrangement is possible of the "building-stones" furnished by the ration, so as to form the new structures into which the food is transformed in milk production. It is not possible to say, at the present time, how much may be achieved in the future in this direction by the application of exact studies of the principles of nutrition.

CHIEF VITAMINS AND NUTRITIVE VALUE

The new discoveries of vitamins and their properties have excited greater interest than any other in recent years. This is natural because their existence was unsuspected, and because so very little of each of them is necessary for the promotion of growth and the maintenance of health in man or animals. Their importance fully justifies the enthusiasm which they have been accorded by the public. It is necessary that the content of the diet in each of the essential vitamins for any given species be carefully considered if optimal well-being is to be secured.

There are at least four vitamins which play a rôle in human nutrition. These are designated as vitamins *A*, *B*, *C* and *D*. The evidence which investigators accept as conclusive for the existence of each of these substances as a chemical substance, without which health and even life cannot be long maintained, consists of a demonstration of the peculiar pathological state which develops when one or another of them is left out of the diet, the latter being otherwise satisfactorily consti-

tuted. The criteria which are usually mentioned as service in enabling the investigator to decide that a certain diet does not contain a particular vitamin, represent only the most obvious symptoms of vitamin deprivation. Thus a lack of the vitamin *A* leads after a few weeks to the development of an extremely severe lesion of the eyes. A lack of vitamin *B* causes enfeeblement, and loss of muscular control. A lack of vitamin *C* causes damage, especially to the capillary blood vessels, causing hemorrhages. Deprivation of vitamin *D* leads to especial damage to the skeleton, resulting in rickets and related conditions when the diet is not appropriately constituted with respect to calcium and phosphorus.

Vitamins *A* and *D* are generally associated in their distribution in natural foods, but the content of different foods in each differs markedly. Vitamin *D* is found in but very small amounts in any ordinary foods, and is present in liberal amounts only in the oil of fish livers. It is of very great importance in the prevention and treatment of rickets in children, and under certain circumstances may be utilized in the feeding of farm animals. The remarkable effects of sunlight, in producing favorable effects on skeletal growth, make it probable that this physical agency is to be relied upon, rather than the more expensive oils containing the vitamin *D*, in preventing skeletal defects in farm animals.

PREVALENCE AND CAUSES OF OSTEOMALACIA

Osteomalacia, or softening of the bones, has long been common among farm animals in certain parts of the world. In the United States, Oregon, Washington, Louisiana and Mississippi are the greatest sufferers, all domestic animals being affected to a greater or

less degree under ordinary feeding practices. In Norway it is also common among cattle, as it is also in the Belgian Congo. The scientific study of the effects of diet on bone formation during the last few years has made it evident that osteomalacia is a condition in the adult animal which is analogous to rickets in the young. It is due entirely to faulty diet and is to be avoided by the provision of rations which contain the proper content of calcium and phosphorus. It occurs in those regions where the ground waters and the soil solution are deficient in calcium or phosphorus to a sufficient degree. Obviously the remedy for this condition is prevention through feeding the proper mineral element. Prevention, and not cure, is alone profitable in farm practice with animals.

Bone defects are extremely common in growing swine in many parts of the United States, and are generally the results of feeding too largely upon cereal grains, especially corn. Feeding stuffs are never profitably utilized when so fed as to induce bone disease, and consequent runtiness. The difficulty is easily evaded by providing growing pigs with diets which are complete in every respect. Competent advisers are available in many of our State Agricultural Experiment Stations, who are teaching farmers how to feed their animals more effectively.

The recent studies of Hart and Steenbock, of the University of Wisconsin, on the relative merits of hay cured under ordinary farm conditions in the windrow and of hay cured under caps, showed the latter to be far superior to the former as a source of calcium for farm animals. Milking goats were unable to assimilate the calcium of the old dried roughage, but could do so when given the product which had been properly handled. Animals which were seriously declining in weight and

health on a ration which according to the older standards would have been regarded as containing everything necessary for proper nutrition, but derived from old dried feeds, recovered at once when allowed to take the same kinds of feeds in part in a fresh, green condition. Failure of calcium assimilation was the outstanding feature of the condition described.

Theiler has described a condition of osteophagia, or bone eating, which is of great importance as a cattle disease in South Africa. Owing to the lack of sufficient phosphorus in the soil, and to the dryness of the soil, the plant growth does not supply sufficient of this element. Cattle develop the habit of searching for bones, and carry these about and chew upon them like dogs. In addition to the results of deprivation of phosphorus, the animals are frequently poisoned by sucking putrid material from infected bones. The condition is entirely cured or prevented by giving the animals sufficient amounts of some salt containing phosphate.

The investigations of Forbes and of Hart have shown clearly the difficulty, under ordinary farm conditions, of providing a sufficient amount of calcium for milking cows with high capacity for production, to prevent the animals from sacrificing a considerable amount of their skeletons in order to keep up the calcium content.

It is unnecessary to emphasize the extent of loss to farmers by feeding their animals during the productive period so as to deplete their vitality and undermine their health. I have been informed that there is so little lime in the soil and feeds in parts of Oregon that during milk production cows frequently deplete their skeletons so as to lead to spontaneous fractures. Milk is one of the richest of all foods in calcium and its production neces-

sitates a large intake of this element in order to prevent a draft upon the skeleton of the cow.

MALNUTRITION AND RELATIVE DISEASES

The value of fresh, green and succulent feeds, as against the same feeds in a dry condition, has long been appreciated by a few acute observers, but in general this, like many other things which make for success, has been overlooked. One of the more serious sources of loss in the dairy industry is due to sterility among bulls. It is impossible at the present time to explain whether or not this is entirely due to improper feeding or in part to lack of exercise from the effects of confinement. Certain it is that in the Middle West bulls, where allowed to run with the herd and get only pasture during the summer and essentially only corn and corn stover when not on pasture, remain vigorous and fertile to the age of twelve or more years. Such was the practice in Kansas during the author's boyhood, and no such thing as a sterile bull was ever heard of.

Now sterility among bulls is of fairly common occurrence. Recently the author visited one of the counties on the Pacific Coast where dairying is almost the only industry. Great trouble was being experienced with sterility in bulls. The farmers had been urged by the men of the Extension Service of the State Agricultural College to breed up their herds for milk production, and had been doing so for several years. They met with the unexpected difficulty that many high-priced bulls of good ancestry were sterile by the age of three or four years. On visiting some farms in that region it was found that many of the bulls were kept in the stable and confined to dry feed almost throughout the year. These animals were given very little, if any, of the anti-

scorbutic substance, vitamin C, for long periods of time. No experimental data have as yet been secured concerning the susceptibility of cattle to scurvy, so the significance of such a deprivation cannot be estimated; but there can be little doubt that the constant restriction of bulls to alfalfa hay, as was being done, caused a lowering of their productive powers. In laboratory animals restriction to diets which are derived in the main from a single natural food, even when the most obvious defects are made good by suitable additions, rarely results in much fertility.

The sterility so frequently seen in high-producing dairy cows may likewise have in part at least a nutritional basis. We need complete information concerning the intake and output of every element under such a regimen, and also of the extent to which the elements in any ration are utilized. It has been pointed out how calcium assimilation fails when the only source of this element is old dry hay, even though the amount furnished by the food may be adequate if it were assimilable. The high-producing cow, because she is giving out such large amounts of various nutrient principles in lactation, may debilitate herself because of excessive loss of one or more elements or complexes. It has been well established that lactating animals continue to give considerable amounts of milk long after the food supply is capable of forming a milk which is complete for the nutrition of the young, and upon which the young fail to thrive. We have seen many instances where the calcium and phosphorus demand upon the mother during lactation resulted in collapse and death without apparent cause. The skeleton in such instances was found to be of the most fragile character.

Over wide areas throughout the northern United States there has for

many years existed a condition which came to be known as the "hairless pig malady." The writer was informed that in the spring of 1916 approximately a million new-born lambs and as many new-born pigs were lost in that part of Montana drained by the Yellowstone River. Similar but somewhat less severe conditions have existed in many other states. It has been thoroughly demonstrated that this condition is caused by lack of iodine in the feed of the pregnant animals. The feeding-stuffs grown in these goiterous regions give no appreciable amount of iodine on analysis, yet they must contain very small traces of this element. Iodine is essential for the proper functioning of the thyroid gland, and deprivation of this element results in simple goiter in domestic animals as it does in man. The study of this problem has brought to light that there was only sufficient of iodine in the feeds to permit a sow to grow to maturity and appear to be in fairly good health, but not enough iodine to permit her to supply this element to a litter of pigs. The consequence was that the young were born with goiters, and born prematurely and in many cases without hair and dead. The provision of a few cents worth of a salt containing iodine will safeguard all the litter of pigs or all the lambs produced in a year on a stock farm.

It will be observed from what has just been said that there has been, and indeed there still is, a great loss of new-born and young animals in certain sections of the country because of a lack of sufficient iodine element. This occurs in the body in such exceedingly small amounts that its significance became appreciated within recent years only because the element, which occurs only to the extent of one part in three million in the normal body, is largely concentrated in the thyroid gland. The

loss of young constitutes a heavy drain upon the resources of the stock farmer under such conditions and makes his efforts yield little return either to himself or to the nation.

Those who come into close contact with the animal industry of the world know that there is much loss of young animals through weakness at the time of birth, and for unknown or obscure causes. This is especially liable to occur in those regions where a single type of crop is of outstanding importance. That these are cases of mismanagement of business through improper feeding, and consequent economic loss and loss of output from the farm, there is no reason to doubt.

It has been repeatedly emphasized in letters which have come to the writer that, although colts may grow up on alfalfa as their sole source of nutriment in certain parts of the West, they have little endurance, and frequently tend to drag their feet when in locomotion so that they become square toed.

Perhaps the best known source of loss in the animal industry through improper feeding is brought about through the production of soft pork. A normally nourished hog, when killed and cooled, acquires the well-known consistency of market pork. Certain animals, especially from parts of the South, remain soft after cooling, and so are referred to as soft pork. The difference between the normal and soft pork is so great that the latter is unsalable. It is impossible to tell by the examination of a hog whether it will yield soft pork or not, and so the production of such animals over a wide area is a source of great economic loss both to the packers, and also to the farmers, since the market tends to be unfavorable for hogs from regions which frequently produce these worthless animals.

Soft pork is likely to occur where

hogs are fed too largely upon peanuts and sweet potatoes, but it is not only these feeds which produce it. The cause is still obscure. The amount of soft pork has been greatly reduced by feeding the animals for a few weeks prior to marketing on some feeds which tend to make the fat hard. It is hardly to be expected, however, that animals which are grown on such restricted rations are in a good state of vigor. They are, more probably, in a state of vitality just above the plane necessary to the continuance of the species in these regions. It is well known that many animals which come from the districts which furnish the soft pork have poor bones, and many fractures occur during shipment. These are convincing evidences that pork production in the areas where soft pork continues to appear, notwithstanding the efforts to avoid it by finishing hogs for the market on special rations, indicates the animals are in an abnormal condition.

The land is never profitably utilized in the production of animals which are suffering from malnutrition of any kind, thus causing weakness in many of the young at birth; or from any weakness which stunts a number of the animals, during the period of growth, and, in order to make them marketable, necessitates their maintenance at a slower rate of growth over a longer period than would have been the case had growth taken place at the fastest rate possible. Foods are not utilized to their full value under such circumstances. It may be possible, where the land is of little value, to secure some profit by producing animals in such an unbusinesslike way. But the presumption always is justifiable, however, that a careful study of the situation by a competent investigator will reveal methods of modifying farm rations in these regions so as to improve the vi-

tality of the animals, increase fertility, avoid runtiness, increase the proportion of food ingested which is converted into utilizable product, and so make the farm more profitable to the nation and to its owner.

The feeding of brood animals is very expensive if their young fail to thrive. The feeding of young animals to maturity, or to a marketable age, is made unprofitable by providing a ration which cannot be efficiently transformed into flesh. At least this is true except in a few out-of-the-way places which can be utilized only for stock raising, and where the land investment is small. The early aging and loss of vigor of a dairy cow of proven worth, because of lack of knowledge of how to feed her with the result that some detail is neglected, when the ration is otherwise

good, results in loss of profit to those who invest their time and labor in her care, and in a lessening of agricultural efficiency.

There is every reason to expect that greater attention to the application of the scientific principles of nutrition, so far as these have been discovered, will increase the efficiency of the land in respect to animal production to a very considerable extent; but it would be idle to attempt to estimate how far this is possible. The examples of faulty practice in several lines which have been given will suffice to show the underlying principles involved, and will give an appreciation of the magnitude of the interests involved. Lack of space does not permit of a discussion of some of the errors common in the poultry industry.

Fertilizer Use in the United States

By SIDNEY B. HASKELL

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FERTILIZER practice in the United States is highly variable. The most intensive use is found on the narrow belt of sandy land which follows the Atlantic coast line from Massachusetts south to the Florida Peninsula. Truck crops, small fruits, early potatoes, sweet potatoes, and many other crops are here grown in an intensive way, quite generally with the aid of chemical rather than of animal fertilizers. Inland, we find very heavy use

of fertilizers in the Atlantic cotton states, but a much smaller use in the cotton states lying farther west. Fertilizer use in the Corn Belt is increasing, in general its extension being coincident with the development of winter wheat production. West of the Mississippi, however, there is as yet too small a fertilizer use to be significant.

Data are presented in the following table. For convenience, the total amount of fertilizer used is estimated

TABLE I—ESTIMATED ACRE APPLICATION OF FERTILIZER, AND CONCENTRATION IN PLANT FOOD

Section	Fertilizer Tonnage	Fertilizer Applied Per Acre, Pounds, on the Basis of			Approximate Concentration in Plant Food, Per Cent		
		Improved Land in Farms	Total Area in Crops with Acreage Reports	Acreage of Crops Normally Sold from the Land	Nitrogen	Phosphoric Acid	Potash
New England. . .	351,709	115	165	1,341	3.92	6.85	4.59
Middle Atlantic. . .	839,001	63.0	99	442	1.22	10.49	3.29
East North Central	615,414	14	20	105	0.76	13.93	2.77
West North Central	60,500	0.7	1	4	0.68	15.79	0.50
South Atlantic. . .	3,670,476	151	230	533	3.06	10.15	3.16
East South Central	856,260	39	64	157	2.47	8.00	3.00
West South Central	259,785	8	10	18	2.46	8.00	3.00
Mountain. . .	3,900	0.3	0.5	1			
Pacific. . .	82,819	7	13	43	8.19	5.77	3.39

Authority for tonnage: Fertilizer Control Bulletins from Alabama, Arkansas, California, Florida, Indiana, Maryland, Massachusetts, Michigan, Missouri, New Jersey, Ohio, Texas and Vermont.

Unpublished correspondence from Delaware, Kansas, Oklahoma, Pennsylvania, South Carolina and Virginia.

The *American Fertilizer Handbook*, for the remaining states.

Authority for concentration of plant food: Fertilizer Control Bulletins for Indiana, Maryland, Massachusetts and Ohio. Estimates from data in Control Bulletins for Florida and California.

Unpublished correspondence from Pennsylvania and Virginia. The figures for Missouri were obtained partly from the Bulletin, partly from correspondence.

The figures for the other states are estimates.

TABLE II.—FERTILIZER TONNAGE BY STATES, 1913, 1923, WITH PERCENTAGE CHANGE

State	Fertilizer Tonnage		Increase (+) or Decrease (-) in 1923 Compared with 1913, Per Cent
	1913	1923	
Georgia.....	1,120,693	675,869	- 40
South Carolina..	918,836	678,695	- 26
North Carolina...	840,447	1,081,811	+ 29
Alabama.....	474,730	436,786	- 8
Virginia.....	412,484	420,897	+ 2
New York.....	880,000	875,000	- 1
Pennsylvania...	840,000	870,550	+ 9
Florida ...	213,723	398,564	+ 86
Indiana.....	193,899	195,195	+ 1
Ohio.....	183,476	303,120	+ 65
Maryland...	169,000	154,845	- 8
Maine.	160,000	168,000	+ 5
New Jersey...	156,661	157,496	+ 1
Mississippi..	128,050	215,854	+ 68
Louisiana.	98,779	108,711	+ 10
Tennessee...	84,060	113,620	+ 35
Texas....	75,500	73,300	- 3
Kentucky.....	75,000	90,000	+ 20
Connecticut..	62,000	75,000	+ 21
Missouri.	60,000	36,807	- 39
Michigan...	57,985	87,841	+ 51
Arkansas....	52,000	74,774	+ 44
Massachusetts..	51,000	63,709	+ 25
Delaware.....	50,000	40,000	- 20
California....	36,000	71,364	+ 98
West Virginia ..	31,852	38,000	+ 19
Illinois.....	30,000	14,000	- 53
New Hampshire	18,000	16,000	- 11
Vermont.....	14,500	18,000	+ 24
Rhode Island..	9,000	9,000	..
Kansas.....	7,380	4,000	- 46
Oregon.....	4,500	8,000	+ 78
Wisconsin.....	4,000	15,000	+ 275
Iowa.....	3,500	11,600	+ 231
Minnesota...	3,500	5,000	+ 43
Oklahoma. ...	2,000	3,000	+ 50
Washington. .	1,500	3,000	+ 100
North Dakota }	1,700	3,000	+ 76
South Dakota }			
Nebraska			
Mountain States.....	4,300	3,900	- 9
Total exclusive of Porto Rico	6,529,509	6,619,308	+ 1

Authority: The American Fertilizer Handbook.

first on the basis of total acreage of improved farm land, which shows the relation between the application of plant food in chemical fertilizers and the upkeep of the soil; secondly, average acre application based on the total area of crops having acreage reports; and finally, and probably most significant, the probable use based upon the acreage of those crops which normally in whole or in part are sold from the land. It is these crops which receive the bulk of the fertilizer used. The last column also shows the average concentration in "plant food," that is, in nitrogen, phosphoric acid and potash, of the fertilizer used in the different sections.

SIGNIFICANT CHANGES

It is impossible to present a similar table for 1913, owing to the fact that basic data on concentration of plant food in fertilizers are lacking. Table II, compiled from estimates presented in the *American Fertilizer Handbook*, shows the more significant changes occurring in the two years under discussion.

Two conditions are responsible for failure of the industry to increase its tonnage output in a ten-year period. First and probably most important is disruption brought about by the World War, and particularly by post-war deflation. Second is the increase in concentration of plant food in mixed fertilizers, which has taken place in recent years. We have no means of measuring the extent of this increase. The possible change may be indicated by the Indiana experience. The sum total of the nitrogen, phosphoric acid and potash contained in the tonnage of that state in 1913 was 15.9 per cent. By 1923 this had increased to 20.3 per cent. Indications showing the fact of the increase are found in nearly all fertilizer-using states, but not in such form

as to lend themselves to statistical analysis.

A better picture of the increase of fertilizer use in the United States is shown by the following table, which reports tonnages year by year from 1913 through 1923:

TABLE III—TOTAL FERTILIZER TONNAGE FOR THE UNITED STATES (EXCLUSIVE OF PORTO RICO)

Year	Tons
1913..	6,529,509
1914	7,322,334
1915	5,543,212
1916	5,320,824
1917	6,125,776
1918	6,682,932
1919	6,836,107
1920	7,589,239
1921	5,163,623
1922	5,860,722
1923	6,619,308

Authority: The *American Fertilizer Handbook*.

The effect of high crop prices in stimulating increased fertilizer use is markedly shown by the experience of the war years. During the war years, however, the fertilizer industry was unable to supply all of the fertilizer demanded, so that tonnage figures above presented do not show the real demand for fertilizer for the years in question.

The following table shows the average wholesale cost on the more important markets of the country of certain standard fertilizer materials of known quality, for the six months preceding March 1 of the years in question.

As between the years 1913 and 1923, the most significant change is in the price of tankage, a standard source of organic nitrogen. All other sources of organic nitrogen have likewise increased. One reason for the increase is the fact that within the ten-year period, the better grades of tankage, of dried blood, even of dry ground fish, have been diverted from the fertilizer mar-

TABLE IV—WHOLESALE COST OF FERTILIZER MATERIALS (PER TON)

Year	Ammonium Sulfate 20½% N.	Nitrate of Soda 15.6% N.	Tankage 10% Ammonia 15% B. P. L.	Muriate of Potash 50% K ₂ O	Acid Phosphate 16% P ₂ O ₅
1913.....	\$65 75	\$51 20	\$25.25	\$40.15	\$7.45
1914.	59.70	45.45	29 15	40 35	7.13
1915.	54.27	38.75	32.42	41 25	7.13
1916..	73.40	60.67	30.72	389.00	10.82
1917.	85.43	62.30	36.95	425.00	11.42
1918	142.47	94.80	64.00	343.00	16.63
1919	99.80	88.85	65.92	260 00	17.46
1920	108.63	61.78	72.62	197.86	18.80
1921	81.16	58.43	50.83	97.35	18.50
1922	46.25	45.98	34.74	38.65	10.81
1923	65 42	50.00	45.28	34.90	8.65

Authority: Oil, Paint and Drug Reporter, *American Fertilizer*, Drug and Chemical Markets.

ket to a relatively new outlet as animal feeds. This change in utilization of what are essentially by-products is apparently permanent.

We have no way of ascertaining the difference in the retail cost of mixed fertilizers between the years in question. Increasing concentration makes for economy. On the other hand, increase in transportation and labor charges may have more than counterbalanced the possible savings.

PROFIT FROM FERTILIZER USE

The wholesale price index of farm-products as estimated by the Bureau of Labor Statistics was 141 for the year 1923. Using the price data given above and a weighting based upon the estimates of the quantities of each class of fertilizer used in 1923, the index number of wholesale prices of fertilizer in the latter year would be 110. On this basis, fertilizer use in 1923 should have been more profitable to farmers than in 1913, and the natural expectancy would be for increased tonnage. The actual use of fertilizer in 1923 was disappointing to manufacturers. Tonnage lower than anticipated was due in part to uncertainty as to the future

tendency of crop prices, and in part to greater content of plant food.

Farmers buy fertilizer in the expectancy of increasing profits from farming. The fertilizer purchased must produce an increase in crop of a value sufficient to enable the farmer to pay for the fertilizer and in addition leave a margin sufficient to make the investment profitable. There are three factors in the problem:

- (1) The cost of fertilizer, as actually applied to the land with interest charged to the date of selling the crop.
- (2) The increase in crop produced by the use of fertilizer.
- (3) The selling price of the crop.

At the time fertilizer is purchased, the last two factors can only be estimated. With many crops the farmer must also estimate the time when the crop will be moved. Naturally, in view of uncertainties as to wind and weather, and of the inability of farmers to forecast probable prices, fertilizer-using farmers expect a rather high margin to compensate them for the risk involved.

In actual practice profits from fer-

fertilizer use are usually due to an absolutely lowered cost of production per unit of crop. They may be due, however, to increase in number of units produced per acre, or per unit of equipment, even though the cost per unit of crop may be somewhat increased. In the former case, within rather wide limits, the amount of fertilizer used is independent of the selling price of the crop, although not of the psychological influence of depressed crop prices. As long as it is profitable to produce the crop, fertilizer will be used. In the latter case, however, use of fertilizer is markedly affected by change in crop prices. The following table, constructed from experimental data reported by the Ohio Agricultural Experiment Station, illustrates the principles involved.

size of crop as influenced by soil management methods followed.

The treatment given Plot 2 is very low in cost. It is also very productive in terms of increase in acre yield. The total cost per bushel up to the point of hauling the crop to the threshing outfit is very significantly lowered by the use of this fertilizer. On the other hand, still further increase in crop is produced by the treatment given Plot 11. The cost of additional fertilizer is so high, however, that the labor and fertilizer cost per unit of crop is increased. Despite this, with wheat at a relatively high price, the acre returns on Plot 11 are higher than on Plot 2. With wheat at a low price, this is not the case. Incidentally, it is interesting to note that the treatment given to

TABLE V—COMPARATIVE EFFECT OF FERTILIZER USE ON COST PER UNIT OF PRODUCT VERSUS NET RETURNS PER ACRE *

Treatment Per Acre	Unfertilized Checks	Plot 2 160 Acid Phosphate	Plot 11 160 Acid Phosphate 100 Muriate of Potash 50 Dried Blood 120 Nitrate of Soda
Wheat yield, 25-year average. . .	11.4 bu.	19.6 bu.	28.1 bu.
Labor cost per acre, up to threshing and marketing †	\$12.00	\$12.00	\$12.00
17 hrs. man at 40 cents.			
26 hrs. horse at 20 cents.			
Fertilizer cost per acre . . . . .	.....	1.20	8.80
Labor and fertilizer cost per acre . .	12.00	13.20	20.80
Labor and fertilizer cost per bushel	1.05	0.673	0.722
Labor cost per bushel	1.05	0.612	0.427
Fertilizer cost per bushel . . . . .	... .	0.061	0.295
Value of crop less cost of fertilizer:			
Wheat at 90 cents	10.26	16.44	16.99
Wheat at \$1.20	13.68	22.32	25.42

* Experimental data from Ohio Bulletin 336, Wooster five-year rotation, applications on wheat.

† Ohio Monthly Bulletin, Vol. III, No. 11.

It should be noted that the assumed values for wheat are for wheat in the bundle prior to threshing. From this point on, the cost of handling varies with the number of bushels to be handled, and is without reference to the

Plot 2 over a series of years has failed to maintain the producing power of the soil. The contrary is true of the treatment given to Plot 11. The significance of these facts is that a low crop price may make necessary a soil man-

agement practice which leads to soil depletion.

From the above table it appears that a remedy for low crop prices and resulting agricultural depression may be secured through decreased cost of production brought about as a result of fertilizer use. There is danger in such an assumption, however, in that such fertilizer use increases the size of the crop; and increased production tends still further to decrease prices. It follows, therefore, that lowering production costs through the use of fertilizer, something which is entirely possible, is a remedy for the individual but not always for the industry.

It has been assumed generally that lower fertilizer cost will react to the benefit of fertilizer-using farmers. This is certainly true in case such lowered costs are not accompanied by an increase in the supply of fertilizer and significant increase in the amount of crop produced. If, however, there be a sudden sharp increase in supply and lowering in cost—as a possible result, let us say, of the development of the Muscle Shoals project—it appears that the gain of some farmers will probably be matched by the loss of others, and that the final benefit from the project will be to consumers of the products of the farm.

Extending Farm Diversification Westward and North-westward Into the Great Plains Region and the Spring Wheat Area

By JOHN LEE COULTER, Ph.D., LL.D.

President, North Dakota College of Agriculture

THE map on the next page shows how the United States has in about one hundred and fifty years, 1774-1924, divided itself up into several more or less definite agricultural regions based upon a combination of forces such as soil, topography, rainfall, temperature, sunshine, accessibility to market, character and genius of the people, effectiveness of scientific research and education, transportation facilities, etc. These regions generally shade off one into the other. They are not necessarily permanent since changing conditions force changes in agricultural policies. But many of these regions have in large measure found themselves in whole or in part or are steadily working toward fairly definite goals. They know in large measure their outstanding problems and are on the way toward sound practical solutions.

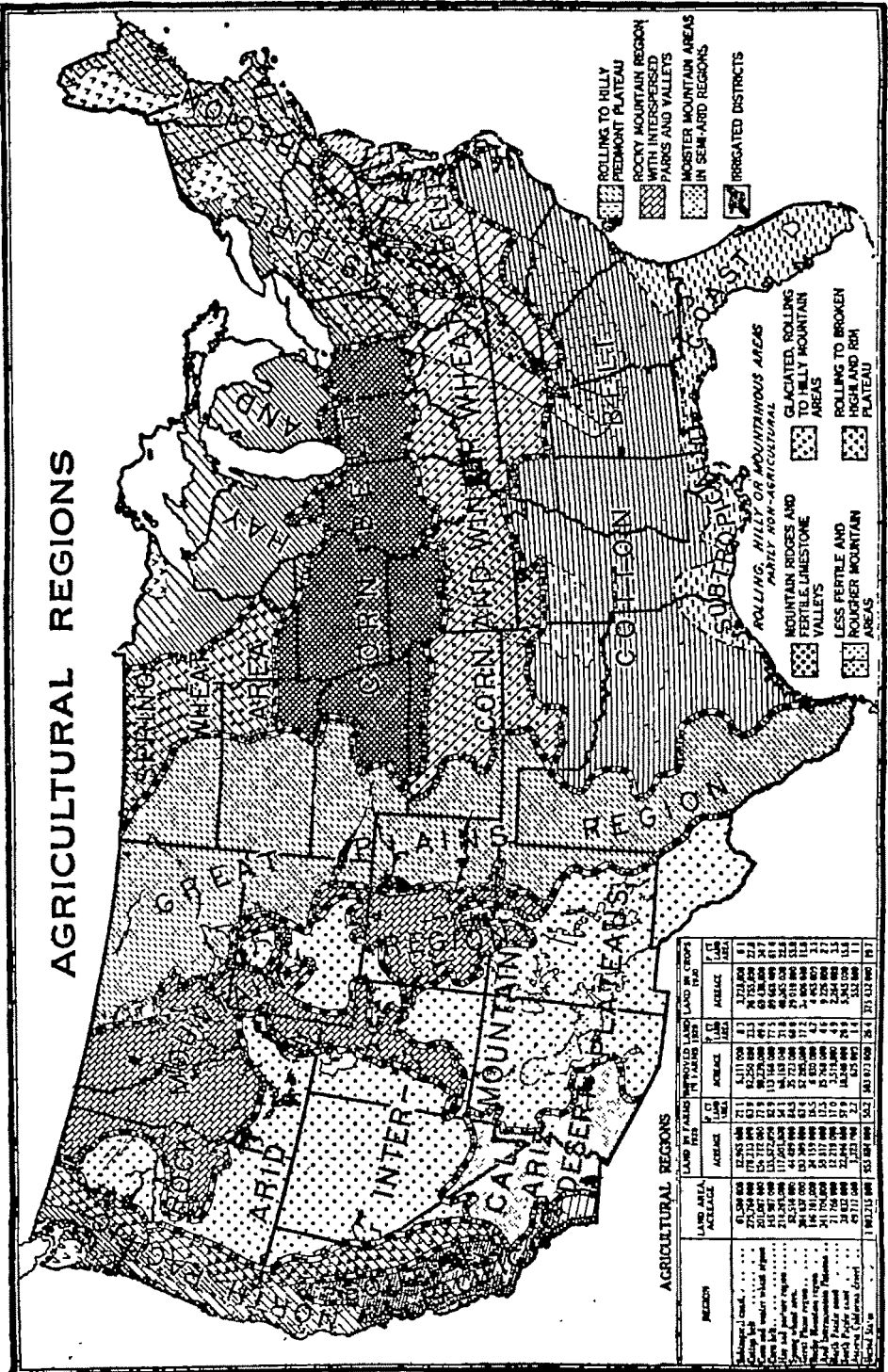
DIVERSITIES OF FARMING

Between the Cotton Belt and the Canadian line and in general east of the 100th meridian we like to refer to the winter wheat, corn and hay and pasture areas. In all that general region diversified farming in varying forms predominates. In some sections winter wheat is the major project, in others corn, and in others hay and pasture. In a smaller way tobacco or potatoes or fruits or vegetables hold major importance. But in general we find a diversified system of farming more or less developed, although with many varying characteristics. Here, on almost every farm is to be found horse power far more important than tractor power;

and farm size units of dairy and beef cattle, sheep, swine and poultry predominate rather than the large ranges of beef cattle or sheep or the highly specialized commercial units of dairy cattle, swine or poultry. Family-sized diversified farms far outnumber the larger sized specialized units. On the general farm the labor is largely performed by the farmer and his family with little hired help and while there are one, two or three major projects such as corn, hogs, and beef or dairy cattle, there are usually several minor projects such as poultry, fruits, vegetables, potatoes, etc.; on the specialized farm usually more labor is employed, the farm in some cases is largely seasonal rather than continuous throughout the year, and there are fewer minor projects.

Not only does each state differ very materially from each other state but sections of the same state differ and individual farms vary widely in details of operation. Indiana is near the center of the northeast quarter of the United States. Since 1875 a period of 50 years—that state has had from 194,000 to 222,000 farms; the average acreage per farm has ranged between 97.4 acres and 105.3 acres; and the improved land has ranged from 71.8 acres to 81.3 acres per farm. More than 75 per cent of her farms are between 20 acres and 175 acres; the same was true 10, 20, 30 and 40 years ago. In 1920 there were 26.7 per cent of her farms under 50 acres; 31.7 per cent from 50 to 100 acres; 28.2 per cent from 100 to 175 acres; leaving only 13.8 per cent over 175 acres in

AGRICULTURAL REGIONS



size. The same situation maintains in Ohio, except that the farms are a little smaller; in Michigan and Wisconsin the same is true; the same of Illinois except that the farms are a little larger; in Iowa they are even a little larger but still on the average under the quarter section in size.

Let one small table compiled from the Federal Census of 1920 present the basic data—the average improved acreage per farm.

of great depression by the sudden change in government policy, such as a revision of the tariff, since we are large importers of these staple products. Producers of other special crops, especially bulky perishables such as potatoes or fruits or vegetables with relatively small chance to invade foreign markets, may experience individual good years or bad years according to the bountifulness of nature or the short crops. Here relatively small reduction

AVERAGE ACREAGE OF IMPROVED LAND PER FARM 1920

The Northern Group of States		The Southern Group of States	
Maine	41.0 acres	Delaware	64.4 acres
New Hampshire	34.2 "	Maryland	65.5 "
Vermont	58.2 "	District of Columbia	20.9 "
Massachusetts	28.4 "	Virginia	50.8 "
Rhode Island	32.5 "	West Virginia	63.2 "
Connecticut	30.9 "	North Carolina	30.4 "
New York	68.1 "	South Carolina	32.1 "
New Jersey	52.4 "	Georgia	42.0 "
Pennsylvania	58.6 "	Florida	42.5 "
Ohio	72.2 "	Kentucky	51.6 "
Indiana	81.3 "	Tennessee	44.3 "
Illinois	115.1 "	Alabama	38.6 "
Michigan	65.8 "	Mississippi	34.3 "
Wisconsin	65.8 "	Arkansas	39.6 "
Minnesota	120.4 "	Louisiana	41.5 "
Iowa	134.0 "	Oklahoma	94.4 "
Missouri	94.4 "	Texas	71.6 "
New England States		South Atlantic States	41.9 acres
Middle Atlantic States		East South Central States	42.2 "
East North Central States		West South Central States	64.4 "

Omitting from consideration in this study the Pacific Coast states, the Desert and Irrigation Areas, the Arid Inter-mountain Plateaus and the Rocky Mountain Regions, what may be said will be confined to the lines of development during the next ten or twenty years in the Spring Wheat Area and the Great Plains Region.

FARM PROBLEMS

Farmers with major projects such as sugar or wool may be tossed about from years of great prosperity to years

or expansion in acreage may create havoc. Here then the problems are not so much Federal legislation, such as tariff changes, but co-operative organizations of producers:

- (1) To influence acreage;
- (2) To retain the lower quality products at home in years of surplus and to get them to the proper markets in years of scarcity;
- (3) To grade and standardize, pack, store and market their products in an orderly fashion;
- (4) To develop ways and means of

drying, curing, canning, and otherwise preserving the surplus in years or months of plenty to supplement the market in years of necessity or in out-of-season months; and

(5) To perform many other useful services for both the producer-sellers, and for the consumer-buyers.

In other great areas the problems are more those of excessive or deficient credit, of land value inflation, of transportation or taxation, of disorderly marketing or poorly planned production. In all districts there are multitudes of problems of right farm practice and correct use of science.

But in the Great Plains Region and the Spring Wheat Belt reorganized production and marketing stand out as the greatest problems of the next decade. This is the land of surplus wheat and beef cattle production. This is the newer area with all the awkwardness of youth. It has not yet found itself.

(1) It is young. Fifty years ago it was largely occupied by Indians, by buffalo, deer and antelope, and by wild chickens, ducks and geese.

(2) It is growing and changing as it grows. It extends out to the borders of present marginal lands which must for centuries be devoted to range, dry farming or irrigation.

(3) It is far from markets and therefore has many problems of transportation, especially of high freight rates, because of its magnificent distances, sparse population and small volume of tonnage.

(4) It is a land of high interest rates—a terrible handicap, especially when passing through the inevitable transition from exploiting original wild lands to a settled or stable agricultural system. High interest rates are natural to newness, sparse population, low land values and temporary farming systems. Much of this area in addition has the load of an excessive number of small banks to carry. Each has so small a

volume of business and so large an operating cost in proportion that high interest rates are inevitable until increased population and business increase their volume or consolidations decrease their number.

In spite of the newness of this region, of its sparse population, its high freight rates and high interest rates, and its other growing problems, this area is on the very border of a district extending from Wisconsin and Minnesota south through Iowa and Missouri (in fact extending out into the corner of North Dakota, farther into South Dakota, still farther into Nebraska and Kansas and even well out into Oklahoma and Texas) where farms have been reduced in size, land values have increased, the population is much more dense, interest rates are lower and agriculture has passed from the soil-robbing exploitive type to a well planned, organized system. Indeed, if one goes well out into the Spring Wheat Area and into the Great Plains Region, one will find hundreds of individual farms already reorganized and established on a safe, sound, profitable and even permanent diversified basis. Here and there a large community will be found in the same condition of progress. The big next step in development is carrying forward this program. Indeed, tremendous progress has already been made. This can best be illustrated by a study of the changes taking place in North Dakota. The map (p. 272) shows this state largely in the Spring Wheat Area.

From the Federal reports we get the following story of the development of wheat and rye in North Dakota.

ACREAGE OF WHEAT AND RYE IN NORTH DAKOTA

1879	84,854
1889	2,710,989
1899	4,479,246
1909	8,236,970
1919	11,520,605

REORGANIZATION WORK

Reorganization work began soon after 1910 and was progressing nicely when the war program of more bread grains, wheat and rye stopped the program and in fact set it back for several years. Year after year the weeds have been increasing until dockage problems

the vegetable and fruit gardens meant not only family requirements but new sources of income. The preceding five years have witnessed tremendous progress. Let the official records speak for themselves.

Here we see that in five years the farmers have decreased their wheat and rye by 3,119,000 acres or 27.1 per cent.

NORTH DAKOTA

	1919	1924	Increase or Decrease	
			Acreage	Per Cent
Wheat acreage	9,098,000	7,486,000	—1,662,000	—18.3
Rye acreage	2,423,000	966,000	—1,457,000	—60.1
Total bread grains	11,521,000	8,402,000	—3,119,000	—27.1
Flax acreage	650,000	1,925,000	1,275,000	196.1
Bread grains and flax acreage	12,171,000	10,327,000	—1,844,000	—15.2
Corn acreage	191,000	1,221,000	1,030,000	539.2
Oats acreage	2,423,000	2,746,000	323,000	13.3
Barley acreage	1,085,000	1,524,000	439,000	40.4
Total feed crops	3,699,000	5,491,000	1,792,000	48.4
Tame hay acreage	544,000	1,111,000	567,000	104.2

have reached an important place; year after year plant diseases—rust, smut, scab, root rot, etc.,—have developed; lower yields per acre, frequent years of lower quality, the tremendous break in prices in 1920–21, and other influences which need not be listed here have added to the difficulties.

But the silver lining has been clearly visible to many—the development of oats and barley and corn as feed and forage and silage crops meant less bread crops, more rotation, cleaner soil, control of weeds and diseases, and finally more livestock (beef cattle, dairy cattle, sheep and swine); the introduction of alfalfa, clover, and other tame and cultivated pasture and hay crops had the same meaning; more attention to the livestock, the poultry,

In turn, they have increased their flax 1,275,000 acres. This is a cash crop which like sugar and wool is well protected by the Federal tariff since the United States is on an import basis in the matter of flaxseed and linseed oil. It is to be noted here, however, that further increases will soon place this country on an export basis and farmers are being urged not to further expand this crop to any material extent lest the world market be made the basis of the domestic market. The net decrease of wheat, rye and flax is 1,844,000 acres.

This does not mean abandoned land or abandoned farms. The increase in corn, oats and barley—three staple feed crops—is 1,792,000 acres or almost equal to the decrease noted above in bread grains and flax. Even 1924,

when the nation had feared a complete corn failure, North Dakota matured a large part of its corn crop either to be hogged down or fed as corn and fodder or put into the silos. Of equal importance is the increase of alfalfa, clover and other types of tame hay. All of this means a safe, sound and profitable livestock industry. Facing a series of years of poor grain crops and poorer prices, while justly urging state and nation to render emergency aid because the crisis was clearly brought about through war policies, the farmers of North Dakota have been busy putting their own house in order. It is a clear illustration of the reorganization or readjustment of agricultural programs in the Spring Wheat Area and the Great Plains Region.

FACTORS IN AGRICULTURAL RECOVERY

Much is being said of the recovery of agriculture in 1924. It is due to a combination of forces. Of first importance is the fact that in the United States the farmers have reduced their wheat acreage from almost 76,000,000 acres in 1919 to less than 54,000,000 in 1924, a decrease of about 22,000,000 acres. Assuming a series of years average yield per acre of 15 bushels for the United States, this meant a decrease in the world supply for 1924 compared to 1919 of about 330,000,000 bushels. This is the basic fact of greatest importance—the reduction in world supply. Next in importance was the rapid re-development of effective world demand through re-establishment of international credits and settlement of reparations. This readjustment of demand and supply brought about better prices—an advance in North Dakota of from 40 cents to 50 cents a bushel compared to the years just preceding. Thinking in terms of a 100,000,000 bushel crop of wheat for North Dakota, this meant a gain of 40 to 50 million

dollars. Relatively the same results were secured in the case of flax and rye, the other two leading grain or seed crops of North Dakota.

The third factor which brought about return to better times in North Dakota was the fact that a good yield was secured in 1924, in the case of wheat over 50,000,000 bushels more than in 1923. This was nature's contribution, which is not dependable from year to year. Over a period of years it seems that we cannot now depend on an average of more than 12.5 bushels per acre. The Spring Wheat Belt shows an average of 12.4 bushels per acre from 1910 to 1914 and 12.8 bushels per acre from 1915 to 1919. This is an average of 12.5 bushels for the ten-year period. But it may fall to 7.5 bushels one year and go up to 17.5 bushels the next. To secure a good yield and good price the same year as we have this year, 1924, cannot be depended upon.

But North Dakota's recovery is not due altogether to the higher prices and to the higher yields of wheat and other grain and seed crops. Each of these factors evidently added something like \$50,000,000 over the returns for 1923. In addition we have to consider the savings due to the fact that the farmers are more and more producing their own family supplies and the increased receipts from sale of poultry products, dairy products, bee products, meats, wool, potatoes, vegetables and fruits. This, of course, is an indirect way of marketing corn, oats and barley, alfalfa, clover, and other feed and forage crops.

Finally, the query is made, will farmers in North Dakota and other parts of the Spring Wheat Area and Great Plains Region continue this program of accelerated diversification, or will they be influenced by good crops of good quality and good prices to return to "the good old days" of small grains as

the major project? My judgment is that they will not generally go backward. Some will, but more will go forward with a net gain for a safer, sounder and more profitable type of farming in this great area. This is sure to mean a breaking down of many farms which are too large for operation by the average farmer with his family. Thus, the average farm in Ohio, Indiana, Illinois, Michigan and Wisconsin is 108.5 acres, while in North and South Dakota in comparison it is 465 acres or four and one-half times as large. The same is true of improved land per farm.

Farming is not a business where men expect to get rich. The ideal is a prosperous, happy, contented, intelligent family in every farm home. To reach this ideal farming must be organized on a sound basis, both practical and scientific. Whereas in 1919 the three small

grain cash crops, wheat, rye and flax, represented 62.6 per cent of all crop acreage, in 1924 they represented only 53.2 per cent. It is believed that in another five years these cash crops will not occupy more than one-third of the crop land in the state. Smaller and better organized farms, more farms, more children in our schools and more people to support them, lower taxes per capita, more and higher valued product to be shipped with relatively lower freight rates, a greater volume of banking with lower interests rates, smaller acreage of small grains but higher yields per acre at lower cost per bushel, more hay and pasture, feed and forage crops and livestock and livestock products and greater income from this source, more home owning, prosperous, happy, educated and contented people—these are some of the results expected from this program of reorganization.

The Relation of Local Farm Output to the Local Product

By JOHN M. McKEE

Deputy Secretary of Agriculture, Commonwealth of Pennsylvania

THE time is rapidly approaching when the United States will cease to be an exporting nation of agricultural products. Many of our eastern states are already in the stage where our food production does not meet consumption needs. This congestion of population in towns and cities as compared with the rural residence is serving to bring the question of local markets in relation to local output in the foreground. The high intermediate handling charges and transportation cost absorb such a large percentage of the consumer dollar as to further accentuate the importance of near-by markets.

The number and extent of local markets is readily apparent from the census figures of Pennsylvania's urban population.

NUMBER AND SIZE OF URBAN CENTERS IN PENNSYLVANIA

20 market centers with population of 25,000 to 1,000,000 or over.

57 market centers with population of 10,000 to 25,000.

93 market centers with population of 5,000 to 10,000.

144 market centers with population of 2,500 to 5,000.

659 market centers with population of less than 2,500.

While only approximately one million of Pennsylvania's nine million population are engaged in farming, yet the value of her agricultural products ranks seventh in the United States. There is, then, a very definite need and problem before market officials, producers and consumers, which is how to bring production and consumption to the most economic balance.

It is only within the last year or two that such a work has been definitely projected and carried out. During the summer of 1923, under a co-operative arrangement,¹ the production of food products in the Altoona district was studied, and some very important findings resulted. Probably some of the conclusions set forth illustrate this best.

POTATOES

Survey Showed:

- (1) Blair County supplies 14 per cent of 140,000 bushels consumed from September to May inclusive.
- (2) Average acreage of potatoes per farm (1.37 acres) too small for efficient production.
- (3) Delivered cost of shipped-in potatoes (125,000 bushels annually) has been from 60 cents to \$1.50 per bushel during past three years.
- (4) Freight paid on shipped-in potatoes has averaged 25 cents per bushel. This is a direct advantage to local growers over competitors.
- (5) Consumers prefer well-graded home-grown potatoes.

Recommendations:

- (1) A minimum of three to five acres per farm necessary for economical use of labor-saving machinery and lower production cost.
- (2) Adoption of production methods of most successful growers:
 - a. Thorough soil culture and ample fertilization.

¹ A co-operative project with the U. S. Department of Agriculture, Pennsylvania State College, Pennsylvania Department of Agriculture, Blair County Farm Bureau and the Altoona Chamber of Commerce, published in Bulletin No. 184, "Adjusting Production to Meet Home Demands in Blair County, Pennsylvania." Pennsylvania State College, State College, Pa.

- b. Use of disease-free seed.
- c. Thorough spraying (6-10 times).
- d. Adequate and efficient machine equipment.
- (3) Marketing season can be lengthened to May, with adequate common storage facilities.
- (4) Co-operative effort in spraying, grading and marketing will reduce costs and increase profits.

POULTRY

Survey Shown:

- (1) Blair County supplies only 11 per cent of 2,132,340 dozen eggs and 23 per cent of 634,000 pounds of dressed poultry consumed.
- (2) Average farm flock consists of 90 hens producing 60 eggs each per year of which only two-thirds are marketed.
- (3) Premium paid for the limited supply of high-grade local eggs. Average of local eggs inferior to better grades of western eggs.
- (4) Acute need for cold storage facilities.

Recommendations:

- (1) Development of farm flocks from good laying strains of heavier breeds.
- (2) Farm flocks should be increased to minimum of 200 hens each for economical production.
- (3) Poultry feeding a profitable outlet for lower grades of wheat.
- (4) More attention to better handling and grading of eggs.
- (5) Good prospects for successful co-operative marketing.
- (6) Cold storage facilities must be secured to efficiently market eggs.

WHOLE MILK

Survey Shown:

- (1) Blair County supplies 100 per cent of 20,861,000 pounds consumed in Altoona.
- (2) Blair County supplies 15,000,000 pounds to other markets.
- (3) Co-operative distribution has been successful for over two years.

Recommendations:

- (1) More efficient production per cow rather than more cows.

- (2) No increase in production unless demanded by market conditions.
- (3) Expansion of present co-operative distribution.
- (4) Campaign for increased milk consumption in Altoona.

TIME AND DISTANCE FAVORS NEAR-BY PRODUCERS

It is doubtful if producers within reach of markets have fully realized or appreciated the advantages of such favorable location. Consumers commonly have a preference for home-grown products even at a higher price, providing the quality has been maintained as it should be. Dairy men in remote sections usually have to market their milk in the form of butter or other manufactured dairy products, while near-by producers sell the major portion of their product as whole milk at a considerably higher price. It is true that with refrigeration methods commodities can be moved almost any distance, but this is costly. Eggs and vegetables also meet with special favor due to freshness based on nearness to market.

The freight advantages of near-by markets are shown by the two following tables on apples and potatoes, which give the freight from the larger producing centers competing with Pennsylvania producers. These rates contain some approximations, but indicate the relative ratio.

It is evident that the shippers of fruit from the far Northwest, shipping largely in bushel carriers, can only afford to send the very best products which must sell at a relatively high price to justify the freight rate of 74 cents per bushel. At a price of \$1.50 per bushel there, the freight would be approximately 50 per cent of the farmers' prices, to which would still have to be added the package cost, the local packing plants charge, and other items. A potato grower in Waupaca, Wis.,

APPROXIMATE FREIGHT RATES *

From Various Shipping Points to Pennsylvania Market

Rates do not include refrigeration or carrier's protective service on apples or heater service on potatoes.

APPLES

Shipping Point	Market											
	Philadelphia			Harrisburg			Scranton			Pittsburg		
	Cwt.	Bu.	Bbl.	Cwt.	Bu.	Bbl.	Cwt.	Bu.	Bbl.	Cwt.	Bu.	Bbl.
Biglerville, Pa.....	25½¢	18¢	41¢	17½¢	9¢	28¢	28½¢	14½¢	45½¢	31¢	15½¢	49½¢
Chambersburg, Pa....	28½¢	14½¢	45½¢	17½¢	9¢	28¢	28½¢	14½¢	45½¢	31¢	15½¢	49½¢
Bedford, Pa.....	31¢	15½¢	48½¢	30¢	15¢	48¢	31¢	15½¢	49½¢	27¢	13½¢	43¢
Falls, Pa.....	28½¢	14½¢	45½¢	28½¢	14½¢	45½¢	11½¢	6¢	18½¢	27¢	13½¢	43¢
East Hebron, Me..	42½¢	21½¢	68¢	42½¢	21½¢	68¢	40½¢	20½¢	65¢	36½¢	18¢	58½¢
Rochester, N. Y. .	28½¢	14½¢	45½¢	28½¢	14½¢	45½¢	28½¢	14½¢	45½¢	27¢	13½¢	43¢
Hancock, Md.....	31¢	15½¢	49½¢	34¢	17¢	54½¢	31¢	15½¢	49½¢	31¢	15½¢	49½¢
Winchester, Va....	32¢	16¢	51¢	25¢	12½¢	40¢	32¢	16¢	51¢	31¢	15½¢	49½¢
Lewiston, Idaho †	1.50	74¢	..	1.50	74¢	..	1.50	74¢	..	1.50	74¢	..
Spokane, Wash. † ...	1.50	74¢	..	1.50	74¢	..	1.50	74¢	..	1.50	74¢	..

POTATOES

Shipping Point	Market											
	Philadelphia			Harrisburg			Scranton			Pittsburgh		
	Cwt.	Bu.	Sack	Cwt.	Bu.	Sack	Cwt.	Bu.	Sack	Cwt.	Bu.	Sack
Macungie, Pa....	19¢	11½¢	28½¢	21½¢	13¢	32½¢	25¢	15¢	37½¢	32¢	19¢	48¢
Stewartstown, Pa.	22¢	13¢	33¢	22¢	13¢	33¢	23¢	17¢	42¢	31¢	18½¢	46½¢
Somerset, Pa.	31¢	18½¢	46½¢	30¢	18¢	45¢	31¢	18½¢	46½¢	19¢	11½¢	28½¢
Coudersport, Pa..	32½¢	19½¢	49¢	32½¢	20¢	49¢	28½¢	17¢	43¢	26½¢	16¢	40¢
Caribou, Me.	60¢	36¢	90¢	65½¢	39½¢	98½¢	60¢	36¢	90¢	60½¢	38½¢	91¢
Freehold, N. J. .	19½¢	11½¢	29½¢	28½¢	17¢	43¢	28½¢	17¢	43¢	34¢	20½¢	51¢
Wayland, N. Y....	28½¢	17¢	43¢	28½¢	17¢	43¢	28½¢	17¢	43¢	27¢	16¢	40½¢
Cadillac, Mich.....	58¢	35¢	87¢	57¢	34¢	86½¢	58¢	35¢	87¢	38¢	23¢	57¢
Waupaca, Wis....	65¢	39¢	97½¢	64¢	38½¢	96¢	65½¢	39½¢	98½¢	44½¢	26½¢	67¢
Moorhead, Minn..	80½¢	48½¢	1.21	80½¢	48½¢	1.21	81¢	48½¢	1.21½	60¢	36¢	90¢

* Data furnished by Mr. William Lynn, Bureau of Markets, Pennsylvania Department of Agriculture.

† Standard Boxes.

shipping potatoes to Philadelphia would experience a 39 cents per bushel charge in competition with Coudersport, Pa., potatoes at 19½ cents per bushel; or, in other words, the Couders-

port grower would enjoy a freight advantage of 19½ cents per bushel. The growers in either case would be experiencing a relatively heavy freight charge on potatoes that would prob-

ably only bring a gross return of 40 to 50 cents per bushel to the grower.

To the local grower who does not have to depend on freight, but can use his own or a local truck, cutting out the freight haul and several intermediate handling charges, the opportunity for profit is much better. It is common for potatoes to sell in producing areas around Pittsburgh, such as Butler County, at \$1 a bushel on the farm, while potatoes will not be bringing more than 60 cents loaded aboard the cars in Potter County.

A study by the Bureau of Markets of the Pennsylvania Department of Agriculture showed that there were 1,158 cars of potatoes unloaded in Scranton in the year 1923. Of these, 100 cars were from Michigan, 24 from Wisconsin, 22 from Minnesota, 7 from North Dakota. The freight on potato shipments from the Lake states alone amounted to close to \$50,000. Conditions for producing potatoes within the trucking area of Scranton are favorable, so that a large portion of this freight bill could be rendered unnecessary by expanding home production.

Eggs furnish a good illustration of low transportation costs. The majority of Pennsylvania shipped eggs moving to the New York market cost approximately two cents a dozen express, with one cent a dozen for the case, or three cents between the remote farm and the large metropolitan commission farm.

ESSENTIAL MARKET SERVICES

In the minds of many consumers there appears to be a belief that, from the time the product leaves the producer until it reaches the consumer, it passes through a "no-man's land" where numerous greedy middlemen take their toll with the result that of the

consumer's dollar, the producer receives possibly 30, 40 or 50 cents. It is not the purpose of this paper to either attack or defend the middleman, but progress in reducing the cost of distribution will be made more rapidly if we recognize what takes place between producer and consumer. For the great majority of food products the following services are essential: assembling, grading, packaging, processing, storing, transporting, financing and distributing. To these might possibly be added risk-taking and advertising, in many cases.

Space cannot be taken here to expand these services, but it should be readily apparent that they are necessary and that they must be rendered by someone, and whoever does this expects to be paid. If the farm wife delivers a pound of butter to the house wife in town, she is then rendering all these services. If the urban dweller goes out to the farm or roadside market, he is rendering part of such services while the producer bears the others. In this case they are not thought of as distinct services, but when the product passes through many intermediate hands for long distances and there are considerable periods of time, these different services are more evident and costly. No system of marketing reform that fails to recognize these facts will make much progress.

METHODS OF MARKETING

All methods of disposing of farm products will be found in connection with any local market of much size. The direct method by which the producer sells through the roadside market, canvases from door to door, or through curb market or market house, can be used extensively.

While the roadside market is only coming into prominence there is little

doubt as to the great outlet this will provide for farm commodities. The demand for products at the roadside markets will come not only from nearby residents but from the millions of tourists traveling the highways daily. More attention to furnishing a first-class product and fixing a fair price based on the recognition that the purchaser is bearing a good share of marketing costs, together with maintaining the roadside markets in a clean and attractive condition, will go a long ways toward increasing this market outlet.

Selling from door to door or at market houses are old established methods which still meet with favor and furnish a mutually satisfactory plan to both the seller and the buyer.

The rapid expansion of the chain stores will bring about some change in the producer to retailer trade, since the chain stores are more inclined to buy in carload lots from the large producing centers, where they can get a standard grade of product which will run more uniform than the seasonal output of local producers. This is a market outlet that is not closed to local

producers if they will offer a substantial quantity of graded, dependable products. In all of these methods the number of intermediate handlings are reduced very greatly and transportation charges are at a minimum with the result that both producer and consumer find the outcome satisfactory. The general price level of commodities is usually based upon the price at which such article can be shipped in carload lots, or in a district where a surplus is produced, the price will be based on what can be secured in some larger distant market less transportation cost. In either case there is considerable variation up or down based on quality and particular market conditions.

SOURCES OF APPLES AND POTATOES

The extent to which local markets are demanding more products than are supplied, is indicated by the two charts showing apple and potato receipts of Pennsylvania cities for 1923. The production of both potatoes and apples can be increased sufficiently to supply home markets within seasonal limits.

ORIGIN OF APPLE RECEIPTS AT PENNSYLVANIA CITIES, 1923 *

City	Pa.	N. Y.	Wash.	Va.	Del.	W. Va.	Md.	Mich.	Idaho	All Others	Total 1923	Total 1922	Total 1921
Allentown	14	34	10	..	..	..	3	..	..	6	67	34	57
Altoona	19	49	34	5	7	2	3	3	..	..	126	84	89
Bethlehem	32	13	10	..	2	13	1	..	..	6	77	5	13
Easton	2	8	1	1	1	4	1	..	..	1	19	8	9
Erie	4	42	12	..	3	1	3	2	13	14	94	50	30
Harrisburg	16	3	27	1	..	1	2	..	..	5	55	46	73
Johnstown	48	43	14	5	1	24	5	1	..	19	160	69	89
Lancaster	29	5	10	..	..	..	..	..	..	..	44	51	117
Philadelphia	474	637	1,199	376	251	85	153	..	10	71	3,256	2,539	3,416
Pittsburgh	141	1,511	686	72	124	178	45	82	52	114	3,005	3,020	2,808
Reading	10	25	15	1	..	..	..	..	..	13	64	84	82
Scranton	37	134	46	3	14	19	16	14	6	27	316	217	337
Wilkes-Barre	5	31	42	..	20	..	2	10	4	13	127	130	291
Williamsport	..	7	5	..	..	..	..	1	..	..	18	21	18
York	9	2	..	..	..	..	..	..	..	..	11	18	47
Total, 1923	840	2,544	2,111	464	423	327	234	113	89	289	7,434	..	..
Total, 1922	397	2,896	1,742	84	459	166	133	51	79	329	..	6,326	..
Total, 1921	493	3,134	2,146	179	60	146	52	59	164	1,043	..	..	7,476

*Compiled by William Lynn, Bureau Markets, Pennsylvania Department of Agriculture.

ORIGIN OF POTATO RECEIPTS AT PENNSYLVANIA CITIES, 1923*

City	Pa.	Maine	N. Y.	N. J.	Va.	Mich.	Wis.	Minn.	Md.	All Others	Total 1923	Total 1922	Total 1921
Allentown . . .			1	45	35	3	1	1	12	26	124	66	48
Altoona . . .	75	2		81	59	55	5	13	28	27	295	379	270
Bethlehem . . .			3	12	6	1			8	12	37	36	22
Easton . . .	3	7	3	34	24	1	2		7	8	89	48	42
Erie . . .	1			6	32	1			26	37	103	89	78
Harrisburg . . .	38	25	35	59	22	22		9	30	112	352	338	305
Johnstown . . .	19		2	18	39	28	4	4	28	41	183	208	254
Lancaster . . .	6	13	6	24	5	4			7	30	95	38	35
Philadelphia . . .	1,569	1,220	1,189	834	1,137	279	150	28	238	1,875	8,519	8,029	7,460
Pittsburgh . . .	245	212	239	287	427	1,504	790	278	93	831	4,906	5,009	5,396
Reading . . .	78	13	8	79	44	9	5	3	9	89	287	166	196
Scranton . . .	88	39	289	105	167	180	24	22	53	191	1,158	1,171	791
Wilkes-Barre . . .	106	49	98	88	121	79	17	8	21	147	734	782	578
Williamsport . . .	3		2	18	16	3			17	9	68	91	36
York . . .	5	1	1	1	2			1		13	24	51	26
Total, 1923 . . .	2,236	1,581	1,876	1,641	2,136	2,169	998	367	572	3,398	16,974		
Total, 1922 . . .	3,105	2,091	1,704	2,365	1,808	1,470	283	16	570	3,059		16,301	
Total, 1921 . . .	2,955	1,083	2,806	1,977	2,445	1,613	46	8	641	1,956			15,580

*Ibid.

THE PRODUCER'S RETURN

Comparative margins between products handled locally and those shipped to large market centers, as on eggs, apples and potatoes, give some indication of the price advantage to the near-by producer. These prices represent actual transactions within the past few weeks.

Eggs¹

Harrisburg: Producer, Retailer, Consumer

	Dollars	Per Cent
Retailer's margin . . .	.05	7.1
Producer receives . . .	.65	92.9
Total retail price . . .	.70	100.0

New York City: Henney Eggs—Usual Trade Channels

	Dollars	Per Cent
Retailer's margin . . .	.15	15.6
Cartage	.01	1.0
Commission	.04	4.2
Express	.02	2.1
Case	.01	1.0
Shipper	.73	76.0
Total retail price	.96	99.9

While the percentage of the consumer's dollar received by the producer is 92.9 per cent in the near-by

Harrisburg market and only 76 per cent in the New York market, yet the higher price obtained in New York actually resulted in a better net return to the producer.

POTATOES¹

Harrisburg: Local Stock—Producer, Retailer, Consumer

	Dollars	Per Cent
Retailer's margin	.20	13.7
Producer receives	1.00	83.3
Total retail price	1.20	100.0

POTATOES

Philadelphia: Upper Lehigh Stock—Usual Trade Channels

	Dollars	Per Cent
Retailer's margin	.40	50.7
Cartage	.04	3.1
Jobber's margin	.10	7.7
Commission-man's margin	.053	4.1
Freight	.129	9.9
Shipper's margin	.078	6.0
Net to producer	.50	38.5
Total retail price	1.80	100.0

On a bulky, heavy product of relatively low price such as potatoes, it is evident that shipping to remote markets is real punishment to the producer. In this case the producer received 38.5 per cent of the consumer's dollar, while on the local sale he received 83.3 per cent.

¹ Data furnished by Bureau Markets, Pennsylvania Department of Agriculture.

Apples

Harrisburg: Stayman No. 1 2½-inch—Producer,
Retailer, Consumer

	Dollars	Per Cent
Retailer's margin	.35	14 0
Package	.20	8.0
Net to producer for fruit	1 95	78 0
Total retail price	2.50	100.0

Apples¹

Recent figures U. S. Department of Agriculture on 1922-23 crop of Washington apples; variety, Winesap; grade, Extra Fancy and Fancy combined; sizes 72-163 to unit grocery stores in New York City.

	Dollars	Per Cent
Retailer's margin	1.87	87.4
Jobber's margin	.49	9.8
Wholesaler's margin	.39	7.8
Transportation charges	.80	16.0
Shipping organization expense	.27	5 4
Packing, package, etc.	.40	8.0
Net to producer for fruit	78	15 6
Total retail price	5.00	100.0

This instance of the prices at Harrisburg is probably typical, while that of northwestern apples shows the extreme handicap of such remote producers. Only a very high price under such circumstance will permit them to continue production.

FUTURE OUTLOOK FOR LOCAL PRODUCERS

In the production of fruit, vegetables, milk, poultry and meat, the

¹ Footnote p. 283.

local market's offer decides advantages to the near-by producer. This condition, along with relatively low land values in the East, would seem to point to more adaptation to meet local food needs and a greater appreciation of the opportunity followed by an advance in land values in such areas. A better balance between local production and consumption is in the interest of society as a whole.

There are within 50 miles of the larger centers of population areas that are tenantless or very poorly farmed. Within such local market areas, farms can be bought for the replacement cost of the buildings. Such conditions raise a question of the wisdom of extensive reclamation projects and land settlement developments. Persons who wish to farm would certainly do well to consider the importance of near-by markets, farm improvements, and especially buildings, good roads and opportunity for social enjoyment before investing in some remote piece of arid or swamp land without roads or improvements.

It would also seem desirable from many standpoints for our population to spread out in more moderate-sized centers, within easy reach of extensive food production areas, rather than to further congest in large cities.

A Balanced Agricultural Output in the United States

By W. J. SPILLMAN

Agricultural Economist, U. S. Department of Agriculture

THE purpose of this article is to consider to what extent agricultural conditions in this country may be improved by a better balanced output of farm products. Methods of bringing about this better balance in production will necessarily come in for consideration.

Two of our major crops, and one of our major livestock products, have reached the stage at which increased prices no longer bring about material increases in production. These are cotton, corn and wool.

By 1913 we had reached a provisional maximum acreage of cotton. That year we grew 37 million acres of cotton. Not until 1923 did the acreage again reach so high a figure. While cotton acreage was extending somewhat in the Southwest, and to a slight extent along the northern border of the former cotton growing region, the ravages of the boll weevil along the southern edge of the region reduced acreage sufficiently to more than offset these increases. But increases in the sections mentioned have now reached a point at which the total acreage is beginning to show a slight increase. The amount of this increase, however, cannot be large compared with the present total.

DEVELOPING COTTON ACREAGE

Except for some additional acreage in sections well adapted to cotton in the Southwest, which will be relatively small at best, future increase in the acreage of this crop must come in the main from extension of cotton into sections hitherto not regarded as well adapted to the crop. This will necessarily be a slow process.

Concerning the possibility of increasing the percentage of crop area devoted to cotton in the older cotton territory, not much is to be expected in this direction. Already the proportion of land devoted to cotton in practically all the older cotton growing sections is about as large as it is practicable to make it. Some of the land must be devoted to the growing of food and feed crops, the smaller the yield of cotton per acre the larger the proportion of land in these other crops. The boll weevil has materially reduced the yield of cotton in most districts, so that a larger proportion of land is now in feed crops than was formerly the case in nearly all cotton growing states.

In view of the fact that our production of cotton has not increased materially in a dozen years, while the world's need of cotton has increased greatly during that time, the price of cotton has risen permanently to new high levels. The culture of the crop is now fairly profitable in sections not having the boll weevil, or where this pest can be measureably controlled.

It would appear therefore that, in sections to which the cotton crop is even fairly well adapted, it would be logical to extend the area of the crop, without serious danger of bringing about overproduction.

The possibility that prices as high as those that have prevailed in recent years may lead to the development of cotton growing on a large scale in sections of the world that have hitherto grown little or no cotton must, however, be taken into consideration. At ten cents a pound nations like China could hardly afford to grow cotton,

pay the freight on it to distant markets, and then pay cost of transporting food from other countries. But with cotton at twenty or thirty cents a pound the situation is quite different. Since the rise in the price of cotton, China's exports of cotton have grown amazingly. Australia, Brazil, Argentina, and a very large and as yet unsettled area in eastern Africa are all adapted to the production of cotton. If the price remains high, all these regions may be expected to increase their production till ultimately the world's need of cotton will be fully met.

Developments of the character just mentioned will probably not be rapid. Therefore, it is fair to expect that for some years to come the price of cotton will be remunerative to the grower. While increase in cotton acreage at this time appears to be justified, it would be wise to keep in mind that such increase may not be altogether permanent. In other words, a few years later it will probably be wise to bring about another readjustment that will require a decrease in cotton acreage.

CORN ACREAGE INCREASES

Following the war between the states, our acreage of corn increased steadily until 1912, except for a short period in the eighties, when low prices checked the increase. In 1912 we apparently reached a position of stability in corn acreage. That is, we had by that time completed the settlement of regions well adapted to corn. The acreage of 107 million acres in 1912 has been exceeded only once since that time. That was in 1917, when much land was left unoccupied by the winter killing of nearly a third of the winter wheat acreage.

The December 1 farm price of corn in 1912 was 48.7 cents a bushel. In 1923, with a total production only 3 per cent less than in 1912, the corre-

sponding price was 72.7 cents, and that at a time when we were just emerging from a severe financial depression. This year, with a crop estimated at about two and a half billion bushels, the price is above a dollar, while in 1913, with a crop almost exactly the same size, the price was 69.1 cents a bushel.

The fact that corn acreage no longer responds readily to an increase in the price of corn indicates that we have come to a stage in our agricultural development at which corn is permanently at a higher price level. The need for corn has increased materially since the acreage came to a virtual standstill, and will probably continue to increase.

Under the conditions just described, it would seem that wherever it is feasible to increase the acreage of corn it might be done with safety. That is, the corn grower would still get a fair price for his product.

Such extension is now going on in a small way in the western plains and mountain states. Because of the long distance to market from these sections, whatever corn is produced will probably be consumed locally, and will thus form the basis of a more extended livestock husbandry. It will hardly affect the price of corn in the principal markets.

There is, of course, much land in the Corn Belt still devoted to such crops as wheat, oats and hay. But it does not follow that this means opportunity for marked increase in corn acreage in this region. Corn has profited much less from the invention of labor-saving machinery than have the small grains. One man with a two-horse team can manage about forty acres of corn. With three or four horses he can manage possibly eighty acres on level land free from stones. But this is the limit. On the other hand, with teams of eight,

twelve, or even of eighteen horses, the same man can handle several hundred acres of the small grains provided the harvesting can be done by custom crews, as is usually the case.

Additional corn acreage in the Corn Belt would call for more labor than is now available. Nor is it likely that this additional labor will become available in the near future. We may not, therefore, expect any material increase in corn acreage in this region.

As will be shown later, we are growing an excessive area of wheat. Whatever replacement of wheat with corn is feasible would seem to be desirable. It would tend to correct the evil of overproduction of wheat without materially affecting the status of corn on the markets.

WOOL PRODUCTION

In all the principal wool producing countries of the world, except New Zealand and South Africa, the number of sheep have been decreasing materially for more than a quarter of a century. There has been considerable improvement in the wool-producing capacity of these animals, so that from some time before the beginning of the present century the world's wool production has remained practically constant. But the wool-using population of the world has continued to increase at nearly its former rate. This means wool shortage at the present time as compared with the past.

As a result of the above situation, the price of wool has risen greatly in recent years. It is now nearly three times what it was at the beginning of the century. There is every reason to suppose that wool prices will continue at a higher level than in the past.

We are now importing considerably more than half our wool requirements. As long as we produce materially less of this product than we require, so that

wool must continue to flow in over whatever tariff wall we choose to maintain, prices should remain satisfactory.

Extension of sheep husbandry on farms is difficult, because of trouble from internal parasites, except in our northern border states, and in the Appalachian region. It would therefore appear that there is room for extensive development of sheep husbandry along our northern border. This development is of more than ordinary interest for the reason that the land required for growing forage for the animals may be taken from our already superabundant wheat acreage. Just how much wheat land might thus be utilized cannot now be foretold. It might be considerable.

So far as the wool market is concerned, there appears to be no reason to fear the effect of such increase in production as is likely to occur. The market for mutton and lamb is a different matter. Our people would probably consume all the lamb offered them at reasonable prices. We should probably be driven to finding markets for mutton in European countries, particularly England.

In making material increase in our production of wool, the limiting factor appears to be the possible market for an increased supply of mutton. By keeping close watch on developments in the market for this product, growers of wool will be able to tell when developments have gone far enough.

SUGAR AND VEGETABLE OILS

There are two other farm products of which we produce considerable, but of which we import large quantities. These are sugar and vegetable oils. There is apparently opportunity to increase our production of both these products.

We produce less than a fourth of our

sugar supply. So far as home consumption is concerned, we could therefore more than treble our present acreage of sugar beets without reaching the point of having to export sugar in competition with other countries.

But there are other considerations. We obtain from our island possessions, duty free, a quantity of sugar somewhat greater than our home production. This will probably continue. Hawaii and Porto Rico are not increasing their production, but the Philippines are, and can doubtless greatly increase the magnitude of their sugar industry. Should we give these islands their independence they would presumably come under our tariff restrictions, possibly with some favoring clause such as now applies to Cuba.

A more important consideration is that we are now Cuba's best customer. In fact, we take almost her entire output of sugar. If we were suddenly to enlarge our sugar production to the point that Cuba would no longer have a market here, we should be certain to meet severe competition from that source. But if we increase gradually, so that Cuban producers may at the same time develop markets in other parts of the world, we might greatly enlarge our sugar beet acreage without seriously interfering with the market situation.

It is an important fact that much of the increased acreage of beets might be taken from present wheat acreage, again helping to reduce excessive production of that staple.

It is always possible, of course, that new discoveries in science may change the market situation. The recent discovery of a method of crystallizing corn sugar has greatly stimulated the corn sugar industry. It has already been announced that a method of crystallizing levulose has been discovered. This

very attractive sugar is made from inulin, a substance abundant in the tubers of the Jerusalem artichoke, in dahlia bulbs, and in chicory roots. What influence those discoveries may have on the sugar situation cannot, of course, be predicted. It is, however, advisable for sugar producers to watch developments in these directions.

The manufacture of artificial silk from wood pulp is growing at an enormous rate—from one and a half million pounds in 1913 to thirty-five and a half millions in 1923. The ramie plant also offers a possible substitute for cotton. A method of separating ramie fiber from the stalk, and from the gums and other substances that occur in the bark of the plant, is said to have been developed recently, making it possible to produce this very superior fiber cheaply. Both cotton and wool feel competition from these two sources, but the amount of such competition cannot be estimated beforehand. The best that can be done is to watch the developments and be governed accordingly.

Our imports of vegetable oils, or materials for their manufacture, amounted in 1922-23 to about 600 million pounds. This takes account only of those oils that may be used as substitutes for cotton seed and peanut oil. We could easily grow enough soybeans or peanuts to supply our total requirements for oils of this class. Soybean production is increasing rapidly at the present time, the acreage being estimated at slightly more than two million acres in 1923. It would take three more million acres of this crop to supply the quantity of vegetable oils we now import, or these three million acres might be divided between soybeans and peanuts. The increase in soybean acreage could, to a certain extent, be made at the expense of wheat acreage—a consummation much to be desired.

THE WHEAT SITUATION

Our annual average production of wheat, in millions of bushels by ten-year periods for the past 30 years, has been 643, 681 and 838. This year we produced some 856 million bushels.

Argentine production for the same periods has been 73, 153 and 182 million bushels, and her last crop was 249 millions.

For Australia the figures are 35, 75 and 110 millions, and her last crop was 10 millions.

Canadian production, by five year periods (six years for the first period) for the past 16 years was 183, 248 and 283 million bushels a year, and her 1923 crop amounted to 474 millions.

With conditions such as these staring in the face, is it not evident that for the generation or more to come the world's need for this cereal will be fully met, and that the price of wheat when crops are normal is to be low—just enough to keep farmers producing wheat? The reason why it would be disadvantageous to American farmers to reduce their wheat acreage should now be evident.

By any means we could reduce wheat to the point merely of supplying our requirements, then it would be a disaster for growers in this country. The price for wheat comparable to that received for most other farm

In the past four years we have produced the average, about 27 per cent of the wheat crop. The average wheat crop during these four years has been 61 million acres. This is 27 per cent of 61 millions or about a half millions. We have had to reduce our wheat production to 16 million acres, or some 60 per cent of a fourth, in order to maintain production within our own needs. This reduction is hardly to be ex-

pected by any means now available. Either some way must be devised for maintaining the price of wheat above the world price level, or farmers must face the necessity of producing wheat at low prices for an indefinite time to come.

THE MINOR CROPS

Oats and hay are grown very largely for consumption on the home farm, small quantities only being grown for sale. The acreage of these two crops quickly adjusts itself to requirements.

All our other crops are grown on much smaller acreage than those already mentioned, the acreage of any one of them being less than one-fourth that of any of the five already discussed. The problem with these small acreage crops is solely that of stabilizing production so that wide price fluctuations may be eliminated, or at least greatly reduced. This problem exists with practically all these crops.

Potatoes will illustrate the situation for the annual crops. The average acreage of this crop for the seven years 1914-20 was 3,841,000 acres. The trend of acreage for a quarter of a century past indicates that for the year 1922 the area needed was about 3,910,000 acres. But in 1921, when other prices were at a very low level, the price of potatoes at the farm on December 1 was \$1.10 a bushel. This relatively high price led farmers to plant 4,307,000 acres of potatoes in the spring of 1922. The acre yield that year happened to be considerably above the average. There was large overproduction, and on December 1 the farm price was only 58.1 cents.

With occasional interruptions due to poor crop years, when yields are much below normal, production of potatoes is up one year and down the next, while the price swings just the other way. During the 16-year period 1900-15, the

price of potatoes fell below cost of production in 8 years.

With long-time crops like apples, the difficulty is accentuated. It takes 8 or more years for young trees to come into commercial production. During a period of low prices, when there has been little or no planting for several years, abandonment of orchards continues till underproduction occurs. Then planting begins, often at a rate far above what is needed. A situation like this occurred late in the first and early in the second decade of this century. For a few years the three states of Idaho, Washington and Oregon alone ordered more trees than were available in all the nurseries of the country. Other apple regions were similarly busy putting out new acreage.

In 1912, enough of the newly planted trees had come into bearing to swamp the markets completely. That year, high class apples sold in the Willamette Valley of Oregon for \$6 a ton. Not only did planting practically cease, but a very large proportion of the trees already in were neglected, and never sent an apple to market. The economic waste in such a course of procedure is appalling.

Broomcorn is another crop that exhibits the evils of frequent over- and under-production. The total acreage of this crop is very small compared with the area well adapted to its culture. Following a year when the price is abnormally high, due to too small an acreage the previous summer, the acreage is greatly extended, frequently into entirely new territory. In the ensuing fall the price is much below cost of production. A community that has been occasionally caught in this way not infrequently abandons the crop altogether. In parts of the Southern Plains region there are broomcorn warehouses that have been empty for years. No broomcorn is grown

near them, nor has been for years, although when they were built the locality was a big producer of broomcorn.

The situation is quite similar with all our fruit and vegetable crops, and with other small acreage crops, such as hops, tobacco, flax and the like.

There is an easy remedy for this entire situation. What is needed is stabilization of acreage at a point that will just suffice to supply the demand for all such products. It would be impossible to fix acreage below this point, for then the price of the product would make it quite profitable, and there would inevitably be such increase in acreage as to swamp the market. But acreage can be stabilized at a point that will bring a fair return to the producer.

The entire trouble arises from the simple fact that at the time the farmer is planting crops of this kind he has no means of knowing what his competitors are doing. In the case of long-time crops like apples, it is easily possible to plant five or six times the average that can ever send its product to market, for it is years after the overplanting is done before the fact is known.

What is needed, then, is a service that will keep growers of small acreage crops fully informed at all times as to what is happening in all localities that compete with them. Growers should be fully informed as to what acreage of a given crop is planted to meet reasonable market requirements, and how much of the crop is normally grown in each zone. By a marketing organization in each region sending its product to market at approximately the same time, when planting time comes in, growers should be informed as to the percentage of a normal crop that has been made in all the zones. It would, indeed,

with proper organization to get this information to growers almost daily during the critical period of planting, so that each grower would know whether he is helping to overplant or underplant a particular crop.

This would never lead to underplanting. If a grower knew at planting time that less of his crop has been planted than the markets require, he would inevitably increase his acreage. It is presumed that if he knew the crop was being overplanted he would reduce his intended plantings.

It seems fair to say that a system of reporting such as here suggested would be of enormous value to farmers, and it would not be disadvantageous to any one.

LIVESTOCK PRODUCTS

For several years past the beef cattle industry has suffered severely from low prices, and the end is not yet in sight. The war stimulated this industry tremendously, and the number of beef cattle, although decreasing steadily for some time, seems yet to be far above market requirements. At least the markets are getting plentiful supplies at prices that are wellnigh ruinous to growers. Before much betterment can be expected there must be a material reduction in the number of breeding stock on farms and ranges.

The fact that sheep have been decreasing in numbers materially for more than a quarter of a century in nearly all the leading sheep-growing nations, resulting in a marked rise in the price of wool, appears to indicate yet a change from beef cattle to sheep. Twelve good many localities might be is suitable. This change should not be should thusily. If it could be brought acreage over jally, so that it could be what more thre the price of sheep began bring productisly affected, it should result Such a reduce in the price of beef cattle

without much danger to the sheep interests.

Dairy products have maintained their price fairly well since the war. The reason for this is to be sought in changes that have come to Corn Belt agriculture. When corn was 50 cents a bushel, and hogs 5 cents a pound, the Corn Belt farmer needed to milk a few cows to make ends meet. In 1909 Iowa was the leading state in the production of butter. But most of the Iowa cows were of the dual purpose type. When corn went to 80 cents, and hogs to 8 cents a pound, Iowa farmers could do very well without milking cows. During the last census period (1909-19) this state decreased its milk production 26.3 per cent. Adjacent parts of other states did likewise. The decrease for the whole of Nebraska was 15 per cent, and for Illinois it was 7 per cent. This was formerly one of our most important dairy regions. The tremendous decrease in milk and butter production here made room for large expansion in dairying in the states to the north and west. The increase in the latter states between 1909 and 1919 was heavy. Yet the vacancy left by the Corn Belt made room for all this increased production elsewhere.

At present beef cattle and hogs are below parity with corn, and Corn Belt farmers for some time past have been turning to dairying again. This is the wrong course of action for them. If they go back to milk production on the former scale, they will not only make hardship for the regions compelled by absence of cheap corn to engage in dairying, but they will lower the price of butter to the point that they themselves will earn little for their labor.

The more logical thing for Corn Belt farmers to do is to adjust the number of beef cattle and hogs to the market

demand, so that they will get a fair price for the products to which the region is best adapted. Here again, a statistical service that will keep stockmen properly informed is needed. We should know at all times how much stock of all kinds are at hand in all sections of the country where livestock are important, and how many should be on hand in order to meet market requirements. What is needed in the case of beef cattle and hogs is stabilization of production at a point that will supply the market at a living price to the producer. This could be accomplished with an adequate statistical service.

Poultrymen are confronted by threatened overproduction on the part of the small to medium sized farm flock. This is due to the recent improvement in farm flocks through culling. Where farmers formerly kept 100 hens, only 60 per cent of which laid any eggs, the more progressive farmers now keep 150 hens all of which lay eggs. Here again stabilization is the remedy. With a statistical service that would enable every poultryman to know just what is going on in the poultry world at all times, he could adjust his business to suit his market outlet.

SUMMARY

This survey indicates that the acreage of cotton, corn, sugar beets, and oil producing crops such as soybeans and peanuts might be increased moderately without seriously endangering present fairly good prices. Production of wool might similarly be increased considerably with safety.

Our acreage of wheat is about 27 per cent more than is necessary to

supply our home needs. There is little probability that the acreage can be reduced to this extent. Some plan of preventing export wheat from controlling the price of the home used product is necessary if the price of wheat is to be brought to a par with that of other farm products.

What is needed in the case of the small acreage crops, and in the case of most livestock products, is a universal statistical service that will enable producers to know at all times just how much they are helping to over- or under-produce. This will enable them to adjust their production at a point that will reduce price fluctuation to a minimum, and greatly lessen the economic waste from frequent over- and under-production.

Some reduction in the number of beef cattle in favor of sheep, especially in the states along our northern border, appears to be desirable.

The enormous increase in agricultural production during the war demonstrated that, when conditions justify, American farmers can greatly increase the production of most farm products. Cotton and corn, and possibly wool, are about the only farm products we would find it difficult to produce more of than the markets would take. Except for the products just mentioned and a few others mentioned earlier in this article, it appears probable that it will be many years before we reach the point where production will fall far behind our needs. This makes it all the more desirable that some such measures as those herein suggested be undertaken as a means of better enabling farmers to obtain their fair share of the national wealth.

Book Department

WALLACE, WILLIAM KAY. *The Passing of Politics*. Pp. 328. Price, \$4.50. New York: The Macmillan Company.

The thesis of this book is that the political organization of society and the political point of view have outlived their usefulness and are to be replaced by an economic organization of society and a social viewpoint. The author holds that politics, like war, is a struggle for power; and that politics replaced war, at the close of the Middle Ages, as an indirect means of accomplishing the ends of the national groups then arising. In this process war was made subservient to politics, and the aristocratic system which was natural in a régime of war was replaced by a democratic political system, which was a backward step and marked the decay of the existing civilization. The rise of politics and diplomacy as the method of settling disputes led to attempts to rationalize and philosophize, and to theoretical speculation concerning the state based on *a priori* dogmas.

With the "method of philosophy," in which dogmatism, speculation and the mystical intuition hold sway, and which the author believes to be inevitably associated with politics, he contrasts "the method of history," in which events speak for themselves. By the application of scientific, historical methods, politics will be replaced by industrialism as the cohesive force in social life. The state is viewed as an obstacle to progress, representing an outgrown, individualistic, middle-class point of view. The new groups represent economic classes, are interested in problems of industrial efficiency, and are agencies working for the disintegration of politics.

The book is stimulating and suggestive, though the thoughtful reader is constantly inclined to quarrel with its generalizations of history and with its conclusions. It represents a phase of the present-day attack upon the state and upon democracy, and shows decided traces of the modern psychological influence on political theory

and of the pluralistic doctrines of guild socialism. To the reviewer, the author's assumption that political philosophy is always *a priori*, and his contrast between the "method of history" and the "method of political philosophy" seems unsound, since political theory represents the intellectual atmosphere of its times and is constantly influenced by the actual institutions of its own day.

RAYMOND G. GETTELL.

ANONYMOUS. *Behind the Scenes in Politics—A Confession*. Pp. 308. New York: E. P. Dutton & Company.

It is unfortunate that this book is anonymous. There is certainly nothing in it that would make the author feel he should conceal his identity. Whether the author has really been the part in public life he says he has been, or whether this is stage business to sell the book, does not appear. The book could have been written by any newspaper reporter who had followed presidential tours around the circle in the past dozen or fifteen years.

The book is interesting. There is an effort apparent on every page toward brilliancy in style, and that brilliancy in style occasionally gets in the way of the thought. The book is full of human interest and is of real value to every student of politics. When the current craze for anonymous books passes someone who has gone through the mill should write just such a book in his own name replete with examples and illustrations.

MELLON, ANDREW W. *Taxation: The People's Business*. Pp. 229. Price, \$1.25. New York: The Macmillan Company, 1924.

Someone has well said that we write our philosophies to justify what we do and do not make our philosophies to guide our actions. The people cut off the head of their king, then someone writes a book creating a philosophy justifying the beheading! For centuries thereafter that

philosophy is used to justify anything else the populus wants to do.

This book by the Secretary of the Treasury gives a philosophy that justifies what the Secretary of the Treasury wants done. That philosophy is largely a personal one. In order to bolster it up poor old Adam Smith is lagged in as are all the other respectables and a sufficient twist given to their ideas to make a one-night stand for the philosophy of the hard pushed.

WRIGHT, PHILIP G. *Sugar in Relation to the Tariff*. Pp. xiii, 312. Price, \$2.50. (Publication of the Institute of Economics.) New York: McGraw-Hill Book Company, 1924.

This excellent study by the Institute of Economics is the first of a series of special investigations of the relation of the tariff to particular lines of production, preparatory to "an analysis and constructive criticism of the American tariff system as a whole."

The writer of the work under consideration studied sugar costs and tariffs several years for the United States Tariff Commission before going over to the staff of the Institute. This monograph is essentially a summary of the data gathered by that Commission and co-operating Federal agencies—particularly the Federal Trade Commission and the Department of Agriculture and Commerce—together with conclusions drawn therefrom. The findings are not merely those of a single author, albeit an unusually well-qualified one, but also of the Council of the Institute, a body which has a personnel and a freedom from political and pecuniary pressure which relieve the reader of the common suspicion of "interested" motive.

The most striking factual data presented are the diagrams of output and cost of sugar production, factory by factory, for specified years in Cuba, Hawaii, Porto Rico, Louisiana and the domestic beet-sugar area. By means of these diagrams it is comparatively easy for "him who runs" to visualize approximately what proportion of the production in each field would be eliminated and what proportion would survive if certain specified prices prevailed. It is clear that much of the domestic beet

sugar is produced more cheaply than the bulk of Cuban sugar but that some of it costs much more. Louisiana, Hawaii and Porto Rico, in order, produce smaller proportions of low cost sugars that could survive Cuban competition without tariff protection. Mr. Wright estimates, on the basis of 1921 and 1922 data, that the percentages of domestic industry that could survive free sugar would be approximately:

Domestic beet sugar	66%
Hawaiian cane sugar	40%
Porto Rican cane sugar	30%
Louisiana cane sugar	42%

Following are summaries of some of the other conclusions.

The annual burden of the present United States sugar tariff upon consumers is about \$216,500,000 of which \$124,500,000 goes as revenue into the Treasury and \$92,000,000 is the taxpayers' contribution to "protection."

Any tariff, however low or high, will, in the course of years if not changed in the meantime, result in stabilized sugar industries, both at home and in Cuba (our only important source of imported sugar) because marginal costs and production are adjusted to prices obtainable. Consequently, in deciding whether or not to adopt the recommendations of the Tariff Commission majority report favoring a lower tariff, President Coolidge is really deciding matters of policy, namely, what proportion of our total consumption shall be furnished by domestic producers and what proportion by Cuban; what part of our revenue shall come from people in proportion to their consumption of sugar and what part in proportion to some other criterion of taxpaying obligation; how much consumers shall subsidize domestic producers or how much they shall favor American seaboard refiners and investors in Cuban sugar plants. The impossibility of taking the tariff out of politics is evident to anyone who thinks.

If the President tries to follow the mandate of the 1922 tariff to fix the rate so as to equalize domestic and foreign costs, no rate he can name will equalize the costs of more than a small fraction of domestic